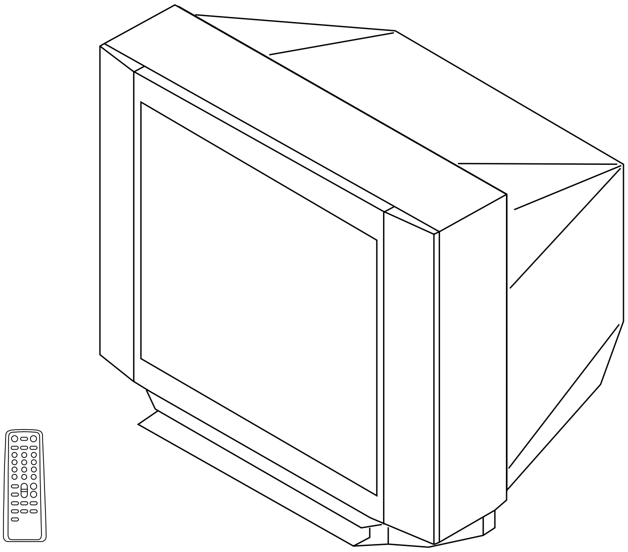
Self Diagnosis
Supported model

SERVICE MANUAL

BG-3S CHASSIS

MODEL	COMMANDER	DEST.	CHASSIS NO.	MODEL	COMMANDER	DEST.	CHASSIS NO.
KV-2199XDK	RM-952	ME	SCC-U30J-A				



MICROFILM

TRINITRON ® COLOR TV

SONY®

SPECIFICATIONS

		Note
Power requirements	110-240 V AC, 50/60 Hz	
Power consumption (W)	Indicated on the rear of the TV	
Television system	B/G, D/K	
Color system	PAL, PAL 60, SECAM, NTSC4.43, NTSC3.58 (AV IN)	
Channel coverage		
B/G	VHF: E2 to E12 / UHF: E21 to E69 / CATV: S01 to S03, S1 to S41	
D/K	VHF: C1 to C12, R1 to R12 / UHF: C13 to C57, R21 to R60 / CATV: S01 to S03, S1 to S41, Z1 to Z39	
(Antenna)	75-ohm external terminal	
Audio output	5W + 5W	
Number of terminal		
(Video)	Input: 2 Output: 1	Phono jacks; 1 V_{P-P}, 75 ohms
♪ (Audio)	Input: 2 Output: 1	Phono jacks; 500 mVrms
(Earphone)	Output: 1	Minijack
Picture tube	21 inch	
Tube size (cm)	54	Measured diagonally
Screen size (cm)	51	Measured diagonally
Dimension (w/h/d, mm)	640 × 456 × 495	
Mass (kg)	27	

Design and specifications are subject to change without notice.

CAUTION

SHORT CIRCUIT THE ANODE OF THE PICTURE TUBE AND THE ANODE CAP TO THE METAL CHASSIS, CRT SHIELD, OR CARBON PAINTED ON THE CRT, AFTER REMOVING THE ANODE.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY SHADING AND MARK ⚠ ON THE SCHEMATIC DIAGRAMS, EXPLODED VIEWS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

TABLE OF CONTENTS

SELF DIAGNOSTIC FUNCTION

The units in this manual contain a self-diagnostic function. If an error occurs, the STANDBY/TIMER lamp will automatically begin to flash.
The number of times the lamp flashes translates to a probable source of the problem. A definition of the STANDBY/TIMER lamp flash indicators is listed in the instruction manual for the user's knowledge and reference. If an error symptom cannot be reproduced, the remote commander can be used to review the failure occurrence data stored in memory to reveal past problems and how often these problems occur.

1. DIAGNOSTIC TEST INDICATORS

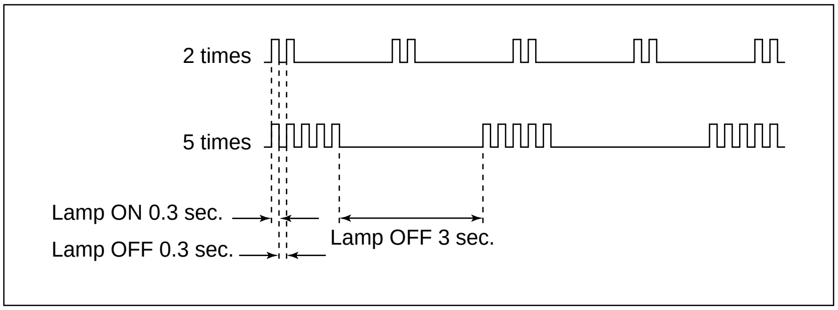
When an errors occurs, the STANDBY/TIMER lamp will flash a set number of times to indicate the possible cause of the problem. If there is more than one error, the lamp will identify the first of the problem areas.

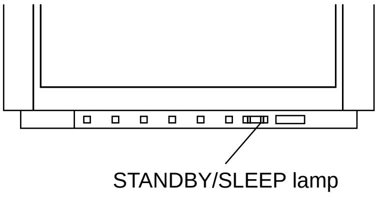
Result for all of the following diagnostic items are displayed on screen. No error has occured if the screen displays a "0".

Diagnostic Item Description	No. of times STANDBY/TIMER lamp flashes	Self-diagnostic display/Diagnostic result	Probable Cause Location	Detected Symptoms
• Power does not turn on	Does not light	—	• Power cord is not plugged in. • Fuse is burned out F4601 (F)	• Power does not come on. • No power is supplied to the TV. • AC power supply is faulty.
• +B overcurrent (OCP) or overvoltage (OVP) • Vertical deflection stopped • Horizontal deflection overdrive	2 times	002:000 or 002:001~255 003:001~255 004:001~255 at the same time	• H.OUT Q511 is shorted. (A board) • IC701 is shorted. (C3 board) • -13V is not supplied. (A board) • IC 503 faulty (A board)	• Power does not come on. • Load on power line is shorted. • Has entered standby state after horizontal raster. • Vertical deflection pulse is stopped. • Power line is shorted or power supply is stopped.
• White balance failure (no PICTURE)	5 times	005:000 or 005:001~225	• G2 is improperly adjusted. (Note 2) • CRT problem. • Video OUT IC701 is faulty. (C3 board) • IC301 is faulty. (A board) • No connection A board to C3 board.	• No raster is generated. • CRT cathode current detection reference pulse output is small.
• Micro reset	—	101:00 or 101:001~225	• Discharge CRT (C3 Board) • Static discharge • External noise	• Power is shut down shortly, after this return back to normal. • Detect Micro latch up.

Note 1: If a + B overcurrent is detected, stoppage of the vertical deflection is detected simultaneously.
The symptom that is diagnosed first by the microcontroller is displayed on the screen.
Note 2: Refer to screen (G2) Adjustment in section 3-4 of this manual.

2. DISPLAY OF STANDBY/TIMER LIGHT FLASH COUNT





Diagnostic Item	Flash Count*
+B overcurrent/overvoltage Vertical deflection stopped	2 times
White balance failure	5 times

* One flash count is not used for self-diagnostic.

3. STOPPING THE STANDBY/TIMER FLASH

Turn off the power switch on the TV main unit or unplug the power cord from the outlet to stop the STANDBY/TIMER lamp from flashing.

4. SELF-DIAGNOSTIC SCREEN DISPLAY

For errors with symptoms such as “power sometimes shuts off” or “screen sometimes goes out” that cannot be confirmed, it is possible to bring up past occurances of failure for confirmation on the screen:

[To Bring Up Screen Test]
In standby mode, press buttons on the remote commander sequentially in rapid succession as shown below:

[Screen display] ➡ channel [5] ➡ Sound volume [-] ➡ Power ON

⇧ Note that this differs from entering the service mode (mode volume [+]).

Self-Diagnosis screen display

SELF DIAGNOSTIC

002 : 000 ← Numeral "0" means that no fault has been detected.
003 : 000
004 : 000
005 : 001 ← Numeral "1" means a fault has been detected.

101 : 000

5. HANDLING OF SELF-DIAGNOSTIC SCREEN DISPLAY

Since the diagnostic results displayed on the screen are not automatically cleared, always check the self-diagnostic screen during repairs. When you have completed the repairs, clear the result display to “0”.

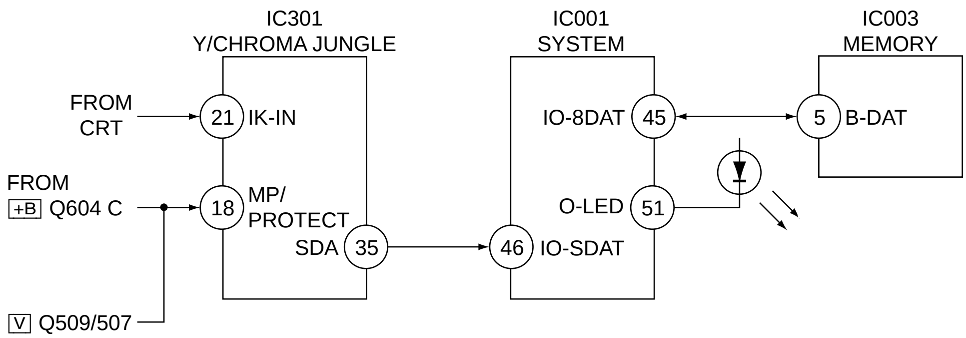
Unless the result display is cleared to “0”, the self-diagnostic function will not be able to detect subsequent faults after completion of the repairs.

[Clearing the result display]
To clear the result display to “0”, press buttons on the remote commander sequentially as shown below when the diagnostic screen is being displayed.

Channel [8] ➡ 0

[Quitting Self-diagnostic screen]
To quit the entire self-diagnostic screen, turn off the power switch on the remote commander or the main unit.

6. SELF-DIAGNOSTIC CIRCUIT



+B overcurrent (OCP)	Occurs when an overcurrent on the +B(135) line is detected by Q604. If Q604 go to ON and the voltage to pin 18 of IC301 should go down when V.SYNC is more than seven verticals in a period, the unit will automatically turn off.
Vertical deflection stopped	Occurs when an absence of the vertical deflection pulse is detected by Q509 and IC001 shut down the power supply.
Vertical deflection overcurrent	Occurs when an overcurrent on V drive line is detected by Q507. Power supply will be shut down when detect this by IC001.
White balance failure	If the RGB levels* do not balance or become low level within 5 seconds, this error will be detected by IC301. TV will stay on, but there will be no picture.

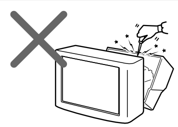
* (Refers to the RGB levels of the AKB detection Ref pulse that detects IK.)

The operating instructions mentioned here are partial abstracts from the Operating Instruction Manual. The page numbers of the Operating Instruction Manual remain as in the manual.

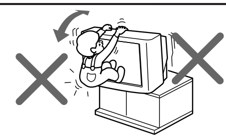
SECTION 1
GENERAL

WARNING

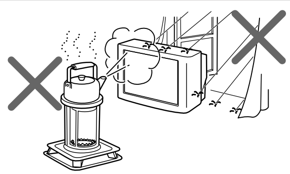
- Dangerously high voltages are present inside the TV.
- Operate the TV only between 110 – 240 V AC.



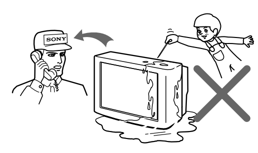
Do not open the cabinet and the rear cover of the TV. Refer servicing to qualified personnel.



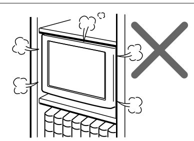
Install the TV in a stable position. Do not allow children to climb onto it.



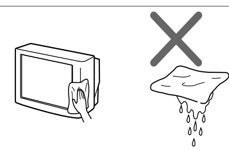
To prevent fire or shock hazard, do not expose the TV to rain or moisture.



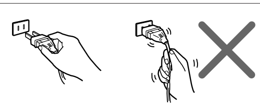
Do not operate the TV if any liquid or solid object falls into it. Have it checked immediately by qualified personnel only.



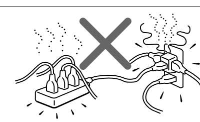
Do not install the TV in a confined space, such as a bookcase or built-in cabinet.
Do not block the ventilation openings of the TV.



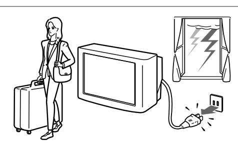
Clean the TV with a dry and soft cloth.
Do not use benzine, thinner, or any other chemicals to clean the TV. Do not scratch the picture tube.



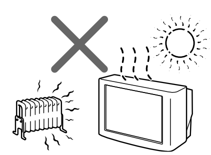
Do not pull the power cord to disconnect the TV. Pull it out by the plug.



Do not plug in too many appliances to the same power socket. Do not damage the power cord.



Disconnect the power cord during lightning storms or if you are not going to use the TV for several days.



Do not install the TV in hot, humid or excessively dusty places.

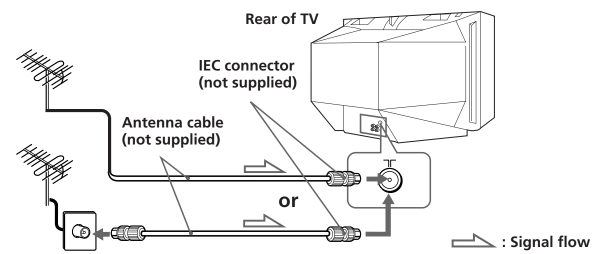
Using Your New TV

Getting Started

Step 1

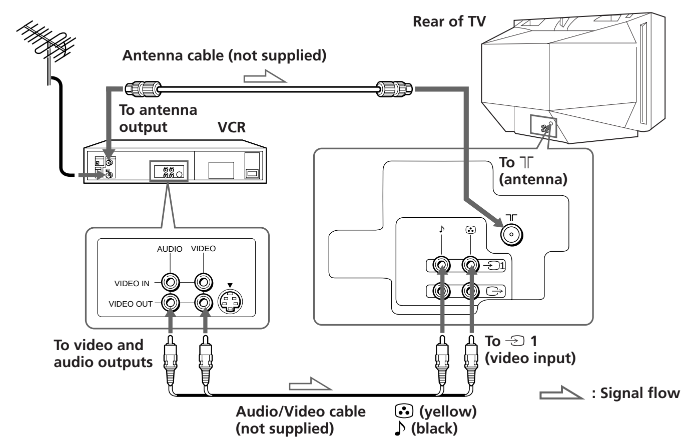
Connect the antenna

If you wish to connect a VCR, see the "Connecting a VCR" diagram below.



Connecting a VCR

To watch the video, press ⊕ (see page 12).

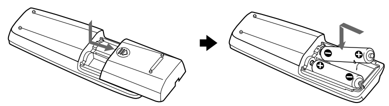


Notes
- If you connect a stereo VCR, connect the yellow plug to (video) (the yellow jack) and the white plug to ♪ (the black jack).
- If you connect a VCR to the ╥ (antenna) terminal, preset the signal output from the VCR to the program number 0 on the TV.
- When no signal is input to the connected video equipment, the TV screen becomes blue.

CAUTION
Do not connect the power cord until you have completed making all other connections; otherwise a minimum leakage current might flow through the antenna and other terminals to ground.

Step 2

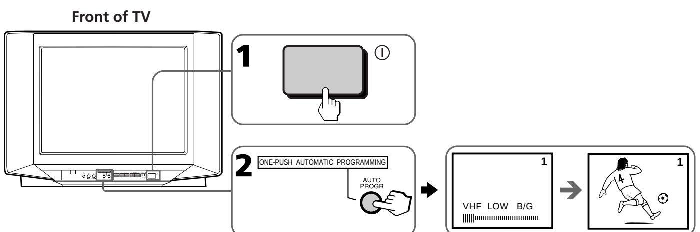
Insert the batteries into the remote



Note
- Do not use old batteries nor use different types of batteries together.

Step 3

Preset the channels automatically

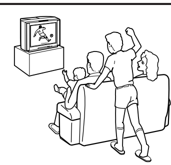


Tips
- If you want to stop automatic channel presetting, press SELECT twice.
- If your TV has preset an unwanted channel or cannot preset a particular channel, then preset your TV manually (see page 9).

Note
- During automatic channel presetting, your TV screen will indicate “B/G” or “D/K” for the TV system.

Now You Are Ready. . .

To watch your TV, see page 11.

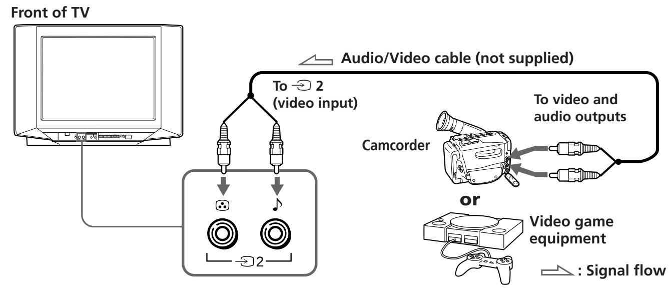


Connecting optional components

You can connect optional video components, such as a VCR, multi disc player, camcorder or video game.

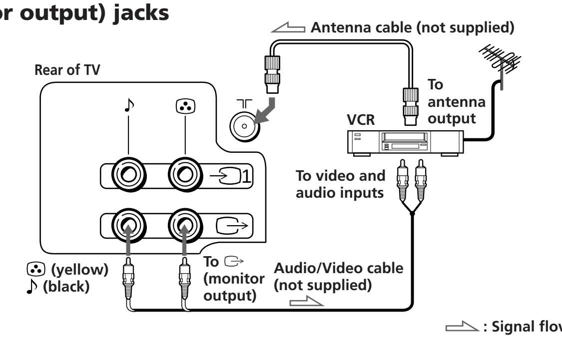
To watch the picture of the connected equipment, press ⇥ (see page 12).

Connecting a camcorder/video game equipment using the ⇥ (video input) jacks



Note
- You can also connect video equipment to the ⇥ 1 (video input) jacks at the rear of your TV.

Connecting video equipment using the ↦ (monitor output) jacks



Note
- When connecting a stereo VCR, connect the yellow plug to (video) (the yellow jack) and the white plug to ♪ (the black jack).

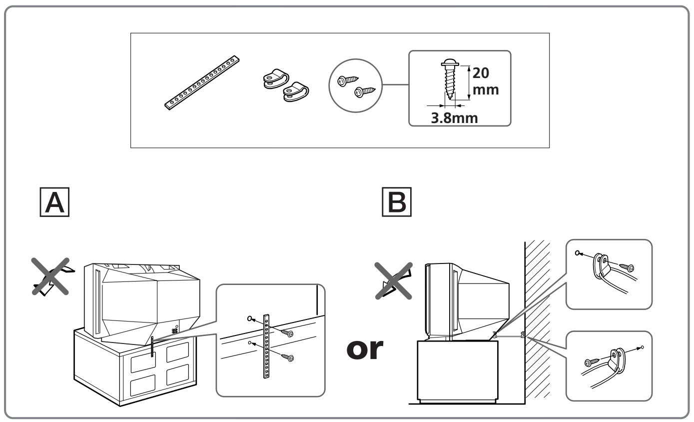
Securing the TV

To prevent the TV from falling, secure the TV using one of the following methods:

A With the supplied screws, attach the band to the TV stand and to the rear of the TV using the provided hole.

or

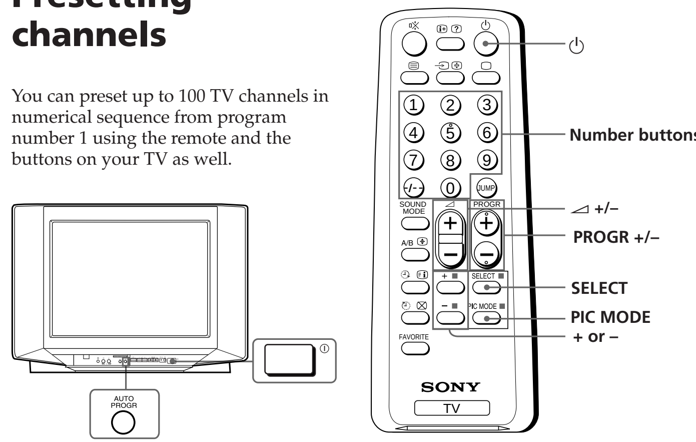
B Put the cord or chain through the clamps to secure the TV against a wall or pillar.



Note
- Use only the supplied screws. Use of other screws may damage the TV.

Presetting channels

You can preset up to 100 TV channels in numerical sequence from program number 1 using the remote and the buttons on your TV as well.



Presetting channels automatically

1 Press ⏻ to turn on the TV.

2 Press AUTO PROGR.



Note
- During automatic channel presetting, your TV screen will indicate "B/G" or "D/K" for the TV system.

To preset channels automatically from a specified program number

(1) Press SELECT until "AUTO PROGRAM" appears.

(2) Press + or –.
The on-screen display will start flashing.

(3) Press PROGR +/– or the number buttons until the desired program number appears.

(4) Press + or –.

Presetting channels manually

1 Press SELECT until "MANUAL PROGRAM" appears.



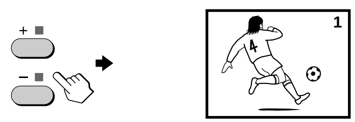
2 Press + or –.



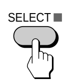
3 Press PROGR +/– or the number buttons until the desired program number appears.



4 Press + or – until the desired channel picture appears.



5 Press SELECT.



To change the TV system setting

If the picture or sound is abnormal when receiving programs through the ⊤ (antenna) terminal.

(1) Press SELECT until "TV SYS" appears.

TV SYS: B/G

(2) Press + or – to select the appropriate TV system until the picture or sound quality is optimal.

→ B/G → D/K

continued

Presetting channels (continued)

To change the color system setting

If the color is abnormal when receiving programs through the ⊤ (antenna) terminal or the ⇥ (video input) jack

(1) Press SELECT until "COL SYS" appears.

COL SYS : AUTO

(2) Press + or – to select the appropriate color system until the color is optimal.

→ AUTO → PAL → SECAM → NTSC 3.58 → NTSC 4.43

Tip
- Normally set "COL SYS" to "AUTO".

Skipping program numbers

1 Press PROGR +/– or the number buttons until the unused or unwanted program number appears.

2 Press SELECT until "MANUAL PROGRAM" appears.

3 Press + or –.

4 Press PIC MODE.

5 Press SELECT.

To preset the skipped program number again

Preset the channel automatically or manually.

Tip
- You can also use SELECT and ⊿ +/– on the TV to preset channels and skip program numbers.

To use the fine tuning (FINE) function

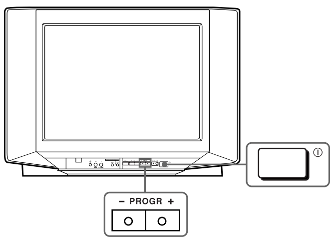
The fine tuning (FINE) function may help to reduce the following problems: double images and lines moving across the TV screen.

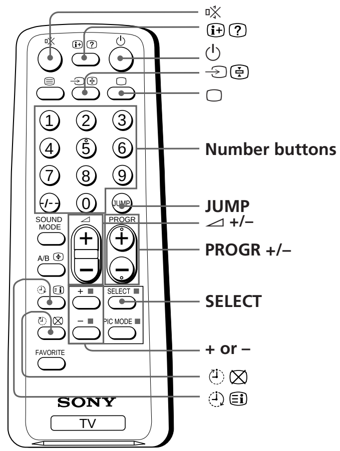
You can use the fine tuning function as below:

(1) Select the program number you want to adjust.
(2) Press SELECT until "MANUAL PROGRAM" appears on the screen.
(3) Press + or – on the remote control once.
(4) Press [i+] [?] to display "FINE" on the screen.
(5) Press + or – continuously until the above problems are minimized. The + or – icon on the screen flashes while tuning.
(6) Press SELECT to return to normal screen.

Watching the TV

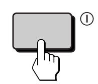
This section explains functions used while watching the TV. Most operations can be done using the remote.





1 Press Ⓘ to turn on the TV.

When the TV is in the standby mode (the ⏻ indicator on the TV is lit red), press ⏻ on the remote or PROGR +/– on the TV.

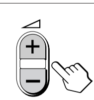


2 Press PROGR +/– or the number buttons to select the TV program.

For double digit numbers, press -/--, then the number (e.g., for 25, press -/--, then 2 and 5).



3 Press ◿ +/– to adjust the volume.



continued

Watching the TV (continued)

Additional tasks

To	Do this
Turn off temporarily	Press ⏻. The ⏻ indicator on the TV lights up red.
Turn off completely	Press Ⓘ on the TV.
Mute the sound	Press 🔇.
Watch the video input (VCR, camcorder, etc.)	Press ⇥⊕ to select “VIDEO 1” or “VIDEO 2”. To return to the TV program, press ▭.
Jump back to the previous channel	Press JUMP.
Display the on-screen information*	Press ⓘ ?.
Adjust the volume of each TV program automatically	Press SELECT repeatedly until “INTELLIGENT VOL” appears, then press + or – to select “ON”. To cancel, select “OFF”.

* The picture, sound, and either the program number or video mode are displayed. The on-screen display for the picture and sound information disappears after about 3 seconds.

Changing the on-screen display language

1 Press SELECT until “LANGUAGE / اللغة : ENGLISH” appears on the screen.



2 Press + or – to select “ عربي ”.

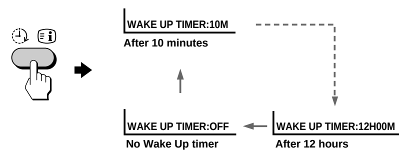


Tip

- You can also use SELECT and ◿ +/– on the TV to select the on-screen display language.

Setting the Wake Up timer

1 Press ◷ ⊟ until the desired period of time appears.



2 Select the TV program or video mode you want to display when you wake up.

3 Press ⏻ or set the Sleep timer if you want the TV to turn off automatically.

The ◷ indicator on the TV lights up orange.

To cancel the Wake Up timer

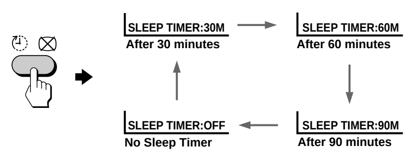
Press ◷ ⊟ until "WAKE UP TIMER: OFF" appears or turn off the TV's main power.

Notes

- The Wake Up timer starts immediately after the on-screen display disappears.
- If no buttons or controls are pressed for more than two hours after the TV is turned on using the Wake Up timer, the TV automatically goes into the standby mode. To continue watching the TV, press any button or control on the TV or the remote.

Setting the Sleep timer

Press ◷ ⊠ until the desired period of time appears.



To cancel the Sleep timer

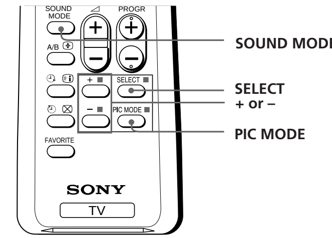
Press ◷ ⊠ until "SLEEP TIMER: OFF" appears or turn the TV off.

Using Your New TV

– 13 –

Customizing the picture and sound

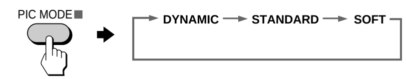
You can customize the picture and sound by selecting the picture and sound modes or by adjusting its settings.



Selecting the picture and sound modes

To select the picture mode

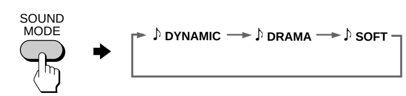
Press PIC MODE repeatedly until you get the desired picture mode.



Select	To
DYNAMIC	receive high contrast pictures.
STANDARD	receive normal contrast pictures.
SOFT	receive mild pictures.

To select the sound mode

Press SOUND MODE repeatedly until you get the desired sound mode.



Select	To
DYNAMIC	listen to dynamic and clear sound that emphasizes the low and high sound.
DRAMA	listen to sound that emphasizes vocals and background music.
SOFT	receive soft sound.

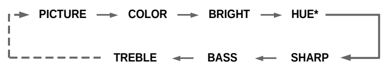
KV-2199XDK
RM-952

Adjusting the picture and sound settings

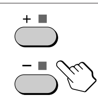
1 Press SELECT until the desired setting appears.



Each time you press SELECT, the setting item will change as follows:



2 Press + or – to adjust the item.



3 To adjust other items, repeat steps 1 to 2.

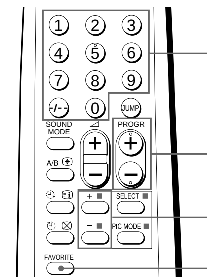
* "HUE" can be adjusted for NTSC system only.

Notes

- When you select a picture or sound mode, the adjusted settings will be reset according to the selected mode.
- You can also use SELECT and ◿ +/– on the TV to adjust the sound and picture settings.

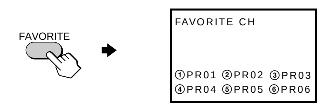
Viewing your favorite channels

You can display six of your favorite channels for quick and easy selection. You can change the favorite channel setting as well.

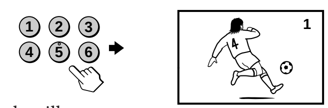


Selecting a favorite channel

1 Press FAVORITE.



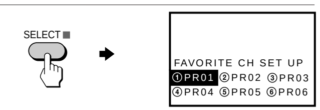
2 Press the number button from 1 to 6 to select the desired channel.



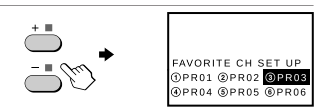
When you use the FAVORITE CH feature for the first time, six preset channels will appear.

Changing the favorite channel setting

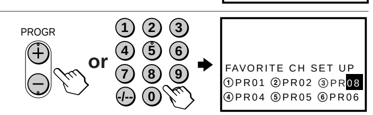
1 Press SELECT until "FAVORITE CH SET UP" appears.



2 Press + or – to select the favorite channel you want to change (e.g. ③ PR03).



3 Press PROGR +/–, or the number buttons to change the program number.

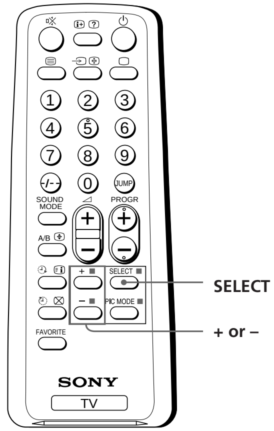


4 Repeat steps 2 and 3 to set other favorite channels.

5 Press SELECT.

Blocking the channels (CHILD LOCK)

You can prevent a child from watching certain programs by using the buttons on the remote control.



1 Select the TV program you want to lock.

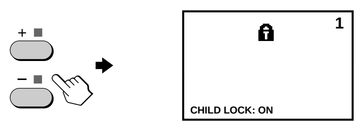
2 Press SELECT until “CHILD LOCK” appears on the screen.



3 Press + or – to select “ON”.

The 🔒 symbol appears on the screen.

To unlock the channel, press + or – to select “OFF”. The 🔒 symbol disappears from the screen.



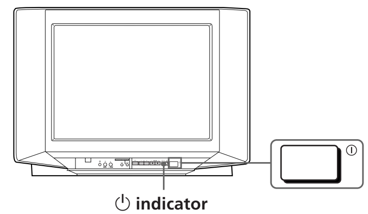
Note

- If you preset a locked channel, that particular channel will be unlocked automatically.

Self-diagnosis function

Your TV is equipped with a self-diagnosis function. If there is a problem with your TV, the ⏻ indicator flashes red. The number of times the ⏻ indicator flashes indicates the possible causes.

Front of TV



1 Check that the ⏻ indicator flashes red a number of times between 3-second intervals.

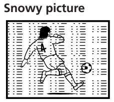
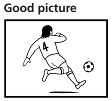
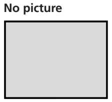
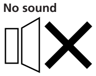
2 Count the number of times the ⏻ indicator flashes.

3 Press ⏼ (main power) to turn off your TV.

4 Inform your nearest Sony service center about the number of times the ⏻ indicator flashes.
Be sure to note the model name and serial number located on the rear of your TV.

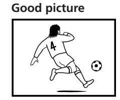
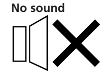
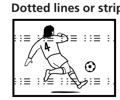
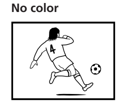
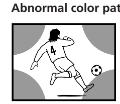
Troubleshooting

If you find any problem while viewing your TV, please check the following guide. If any problem persists, contact your Sony dealer .

Symptom	Solutions	Possible cause
Snowy picture  Noisy sound 	• Check the antenna cable and connection on the TV, VCR and on the wall. (page 4)	• Connection is loose or the cable is damaged.
	• Press SELECT until "MANUAL PROGRAM" appears on the screen then preset the channel again. (page 9)	• Channel presetting is inappropriate or incomplete.
	• Check the antenna type (VHF/UHF). Contact a Sony dealer for advice.	• The antenna type is inappropriate.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
	• Try using a booster.	• Signal transmission is low.
Distorted picture  Noisy sound 	• Turn off or disconnect the booster if it is in use.	• Broadcast signals are too strong.
Good picture  Noisy sound 	• If the sound of some channels are noisy, select the channel, then select the appropriate TV system (TV SYS). (page 10)	• The TV system setting is inappropriate.
No picture  No sound 	• Check the power cord, antenna and the VCR connections.	• The power cord, antenna or VCR is not connected.
	• Press ⏻ (power). • Press Ⓘ (main power) on the TV to turn off the TV for about five seconds, then turn it on again.	• The TV is not turned on.

continued

Troubleshooting (continued)

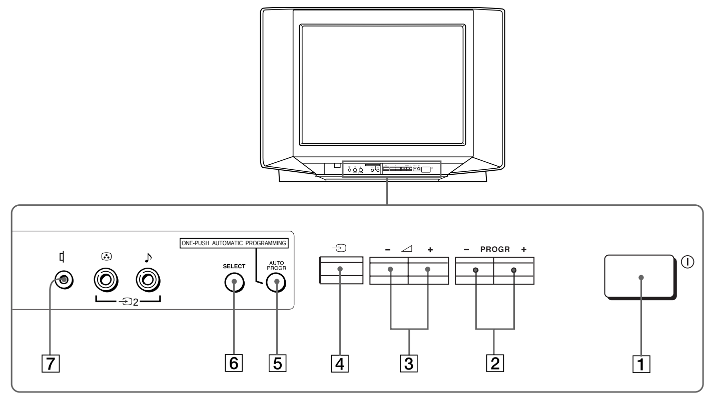
Symptom	Solutions	Possible cause
Good picture  No sound 	• Press ⊿ + to increase the volume level.	• The volume level is too low.
	• Press 🔇 to cancel the muting.	• The sound is muted.
Dotted lines or stripes 	• Do not use a hair dryer or other equipment near the TV. • Adjust the antenna direction for minimum interference. Contact a Sony dealer for advice.	• There is local interference from cars, neon signs, hair dryers, power generators, etc.
Double images or "ghosts" 	• Use a highly directional antenna. • Use the fine tuning (FINE) function. (page 10)	• Broadcast signals are reflected by nearby mountains or buildings.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
	• Turn off or disconnect the booster if it is in use.	• Use of a booster is inappropriate.
No color 	• Press SELECT until "COLOR" appears on the screen, then press + or – to adjust the color level. (page 15)	• The color level setting is too low.
	• Press SELECT until "COL SYS " appears on the screen, then check the color system setting (usually set this to "AUTO"). (page 10).	• The color system setting is inappropriate.
	• Adjust the antenna direction. Contact a Sony dealer for advice.	• The antenna direction is inappropriate.
Abnormal color patches 	• Keep external speakers or other electrical equipment away from the TV. Do not move the TV while the TV is turned on. Press Ⓘ (main power) on the TV to turn off the TV for about five minutes, then turn it on again.	• The magnetic disturbance from external speakers or other equipment, or the direction of the earth's magnetic field may affect the TV.

Symptom	Solutions	Possible cause
Lines moving across the TV screen	• Use the fine tuning (FINE) function. (page 10)	• There is interference from external sources, e.g., heavy machineries, nearby broadcast station.
The ⏻ indicator on your TV flashes red a number of times between 3-second intervals.	• Contact your nearest Sony service center. (page 18)	• Your TV may need service.
TV cabinet creaks.	—	• Changes in room temperature sometimes make the TV cabinet expand or contract, making a noise. This does not indicate a malfunction.
A "boom" sound is heard when the TV is turned on.	—	• The TV's demagnetizing function is working. This does not indicate a malfunction.

Identifying parts and controls

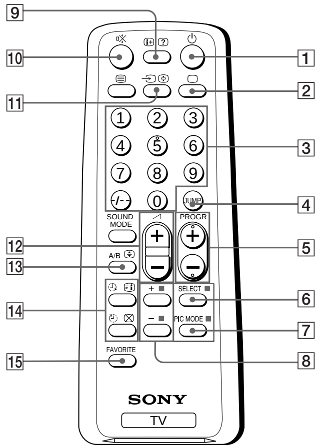
Refer to the pages indicated in parentheses ( ) for details.

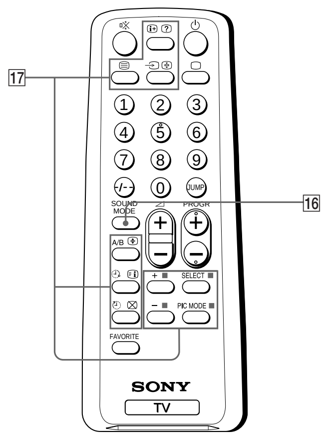
Front panel



1 ⏻ (main power) button (11)
2 PROGR +/– (program) buttons (11)
3 ◿ +/– (volume) buttons (11)
4 ⊕ (TV/video) button (12)
5 AUTO PROGR (program) button (5)
6 SELECT button (10)
7 ∩ (earphone) jack

Remote Control





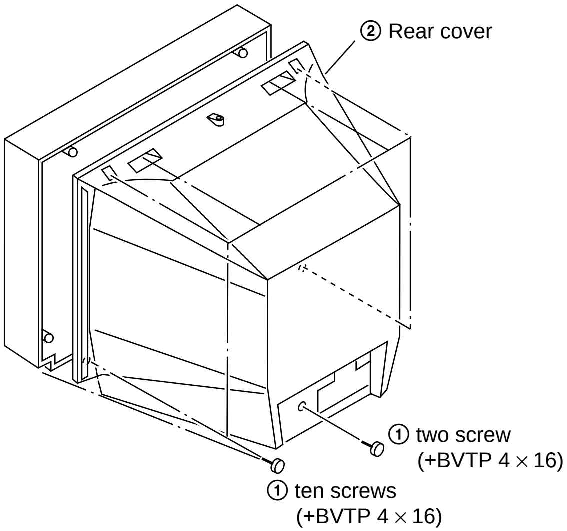
1 ⏻ (power) button (11)
2 (TV) button (12)
3 Number buttons (11)
4 JUMP button (12)
5 PROGR +/– buttons (11)
6 SELECT button (9)
7 PIC MODE button (14)
8 +/– buttons (8)
9 (display) button (12)
10 (muting) button (12)
11 (video) button (12)
12 +/– (volume) buttons (11)
13 A/B button
(not used for KV-2199XDK)
14 Timer setting buttons (13)
(wake up timer)
(sleep timer)
15 FAVORITE button (16)
16 SOUND MODE button (14)
17 Teletext operation buttons
(not used for KV-2199XDK)
(text) (enlarge)
(reveal) (hold)
(index) (text clear)
■ (FASTEXT: red, green, yellow, blue)

Names/symbols of buttons on the remote are indicated in different colors to represent the available functions.

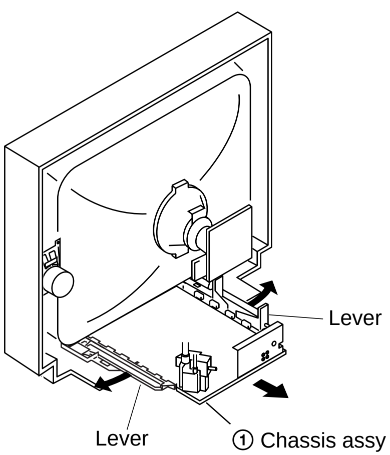
Label color	Button function
White	For general TV operations
Green	For Teletext operations

SECTION 2
DISASSEMBLY

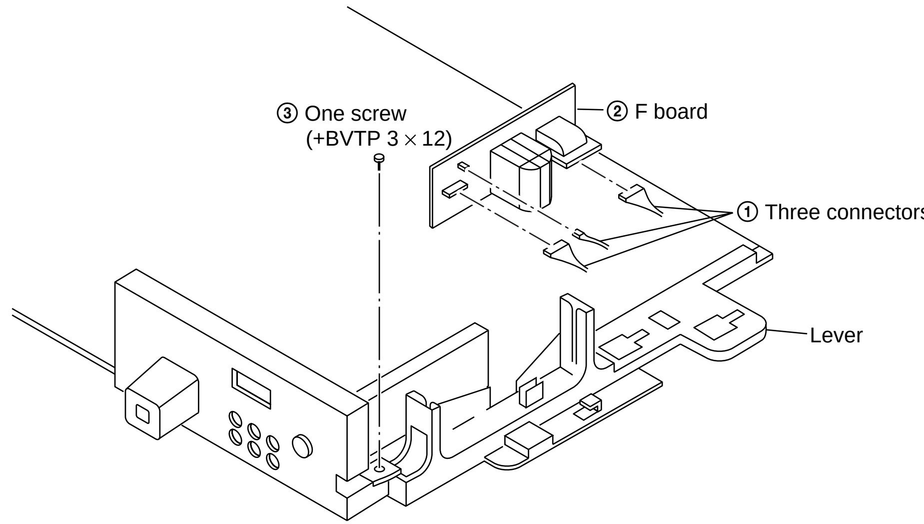
2-1. REAR COVER REMOVAL



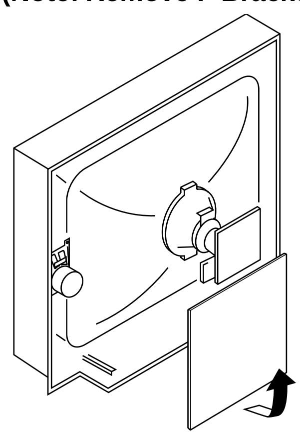
2-2. CHASSIS ASSY REMOVAL



2-3. F BRACKET REMOVAL



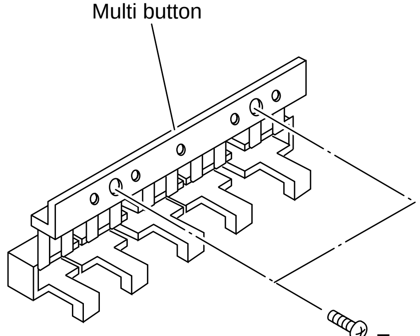
2-4. SERVICE POSITION
(Note: Remove F Bracket first.)



2-5. REPLACEMENT OF PARTS

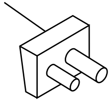
For replacement of the Multi Button, cut the welded portions from them, exchange with the new parts, and fix them with screws (+BVTP 3 x 12).

2-5-1. REPLACEMENT OF MULTI BUTTON

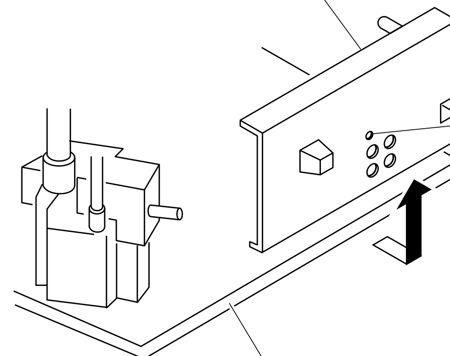


For replacement of the Light Guide, remove it, and exchange with the new part to fix.

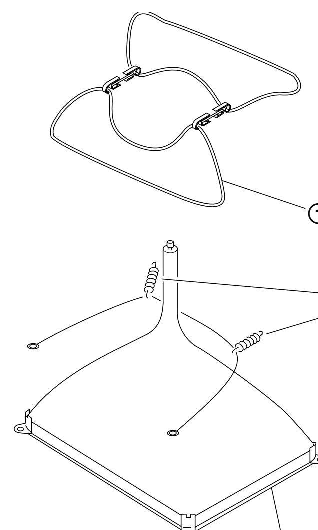
2-5-2. REPLACEMENT OF LIGHT GUIDE



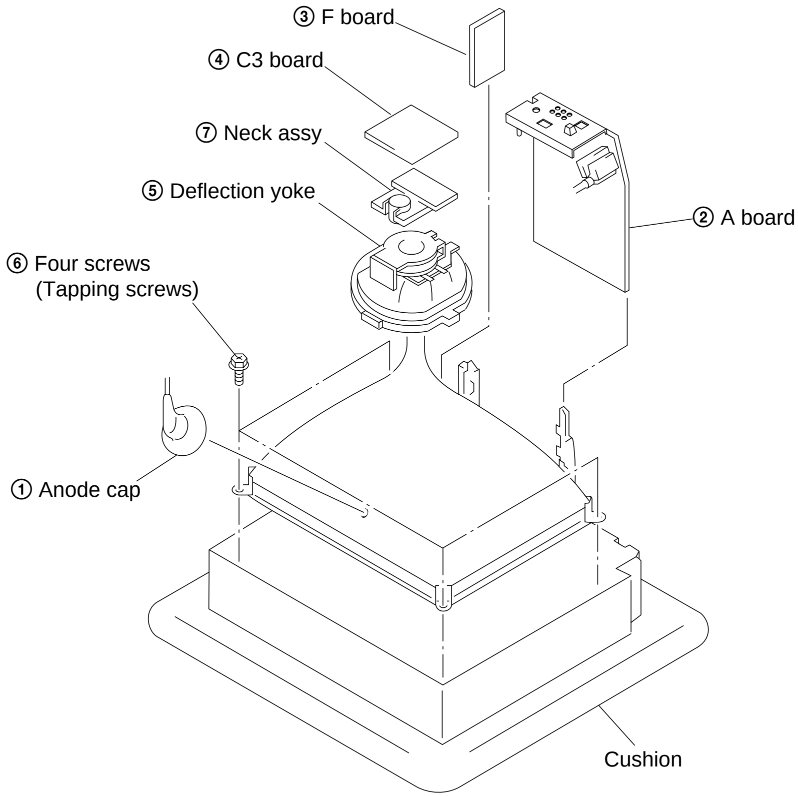
2-6. TERMINAL BRACKET REMOVAL



2-7. DEGAUSS COIL REMOVAL



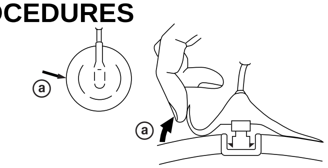
2-8. PICTURE TUBE REMOVAL



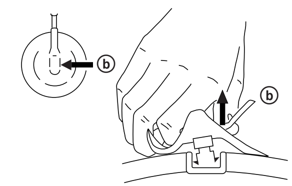
• REMOVAL OF ANODE-CAP

NOTE : After removing the anode, short circuit the anode of the picture tube and the anode cap to the metal chassis, CRT shield or carbon paint on the CRT.

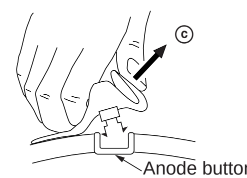
• REMOVING PROCEDURES



① Turn up one side of the rubber cap in the direction indicated by the arrow ⓐ.



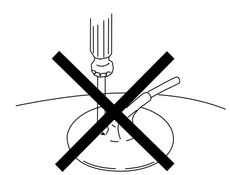
② Using a thumb pull up the rubber cap firmly in the direction indicated by the arrow ⓑ.

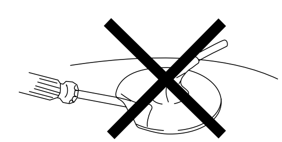


③ When one side of the rubber cap is separated from the anode button, the anode-cap can be removed by turning up the rubber cap and pulling it up in the direction of the arrow ⓒ.

• HOW TO HANDLE AN ANODE-CAP

① Do not damage the surface of anode-caps with sharp shaped objects.
② Do not press the rubber too hard so as not to damage the inside of anode-cap.
A metal fitting called the shatter-hook terminal is built into the rubber.
③ Do not turn the foot of rubber over too hard.
The shatter-hook terminal will stick out or damage the rubber.





SECTION 3
SET-UP ADJUSTMENTS

- The following adjustments should be made when a complete realignment is required or a new picture tube is installed.
- These adjustments should be performed with rated power supply voltage unless otherwise noted.

Controls and switches should be set as follows unless otherwise noted:
PICTURE control .... normal
BRIGHTNESS control .... normal

Perform the adjustments in the following order :
1. Beam Landing
2. Convergence
3. Focus
4. White Balance

Note : Test Equipment Required.
1. Color-bar/Pattern Generator
2. Degausser
3. Oscilloscope

Preparation :
- In order to reduce the influence of geomagnetism on the set's picture tube, face it east or west.
- Switch on the set's power and degauss with the degausser.

3-1. BEAM LANDING

1. Input a white signal with the pattern generator.
   Contrast } normal
   Brightness }
2. Position neck assy as shown in Fig3-2.
3. Set the pattern generator raster signal to a green raster.
4. Move the deflection yoke to the rear and adjust with the purity control so that the green is at the center and the blue and the red take up equally sized areas on each side.
   (See Figures 3-1 through 3-3.)
5. Move the deflection yoke forward and adjust so that the entire screen is green. (See Figure 3-1.)
6. Switch the raster signal to blue, then to red and verify the condition.
7. When the position of the deflection yoke has been decided, fasten the deflection yoke with the screws and DY spacers.
8. If the beam does not land correctly in all the corners, use a magnet to adjust it.
   (See Figure 3-4.)

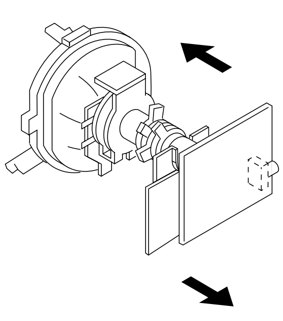


Fig. 3-1

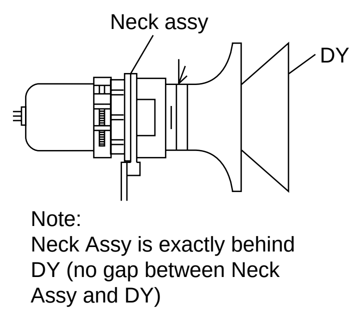


Fig. 3-2

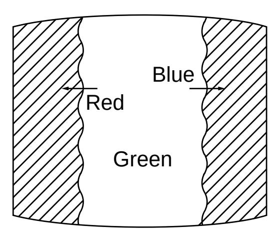


Fig. 3-3

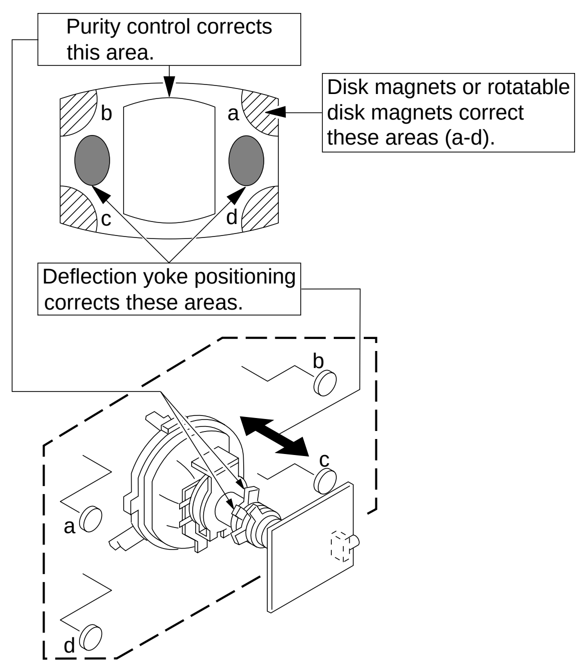


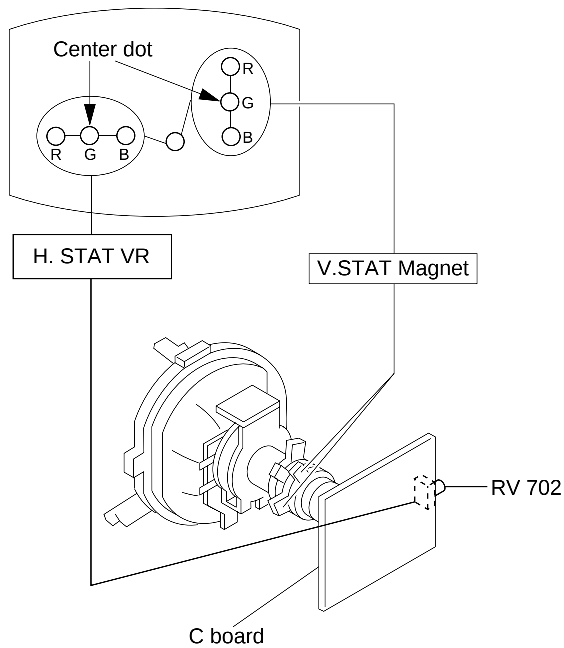
Fig. 3-4

3-2. CONVERGENCE

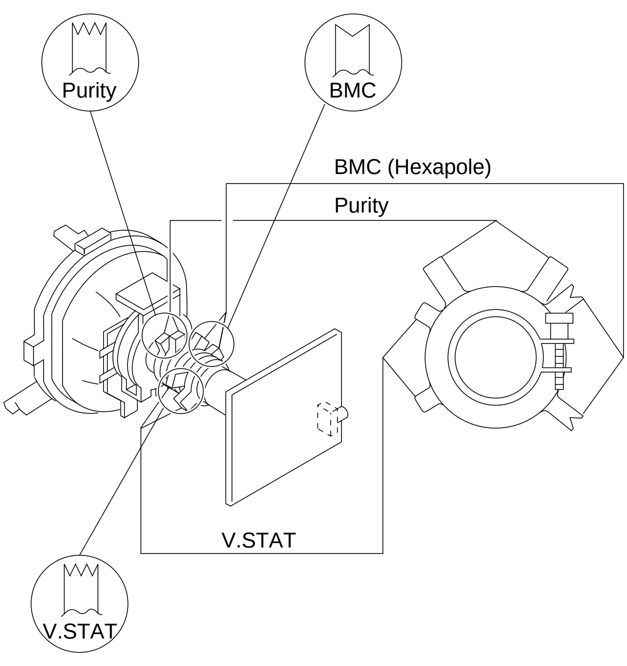
Preparation :

- Before starting this adjustment, adjust the focus, horizontal size and vertical size.
- Minimize the brightness setting.
- Provide dot pattern.

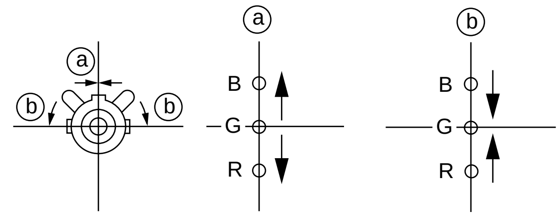
(1) Horizontal and Vertical Static Convergence



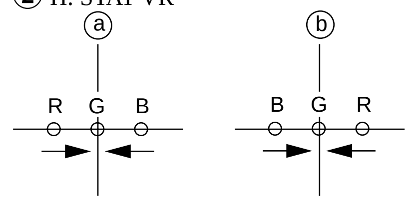
(Moving vertically), adjust the V.STAT magnet so that the red, green and blue dots are on top of each other at the center of the screen.



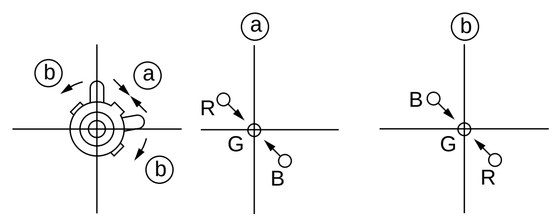
① V. STAT



② H. STAT VR

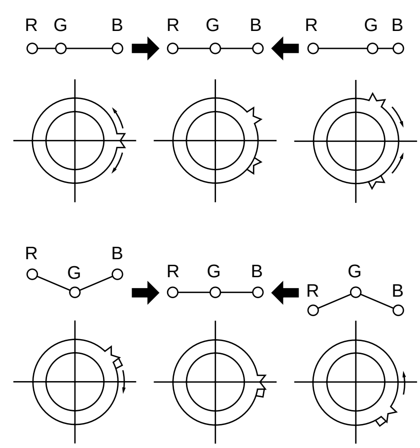


③



④ BMC (Hexapole) Magnet.

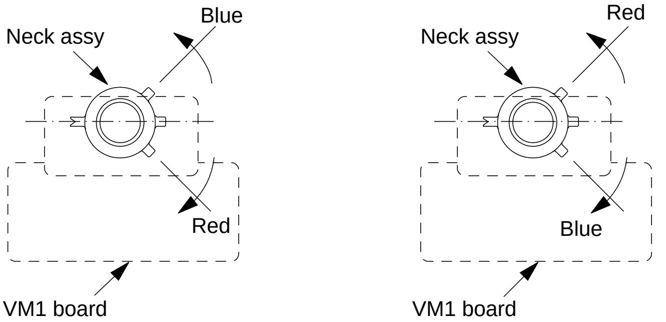
If the red, green and blue dots are not balanced or aligned, then use the BMC magnet to adjust in the manner described below.

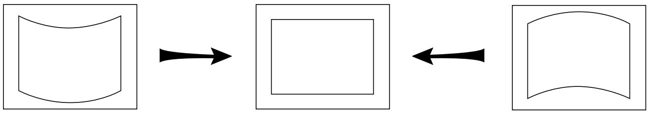


④ Y separation axis correction magnet adjustment.

1. Receive the cross-hatch signal and adjust [PICTURE] to [MIN] and [BRIGHTNESS] to [STANDARD] .

2. Adjust the Y separation axis correction magnet on the neck assembly so that the horizontal lines at the top and bottom of the screen are straight.





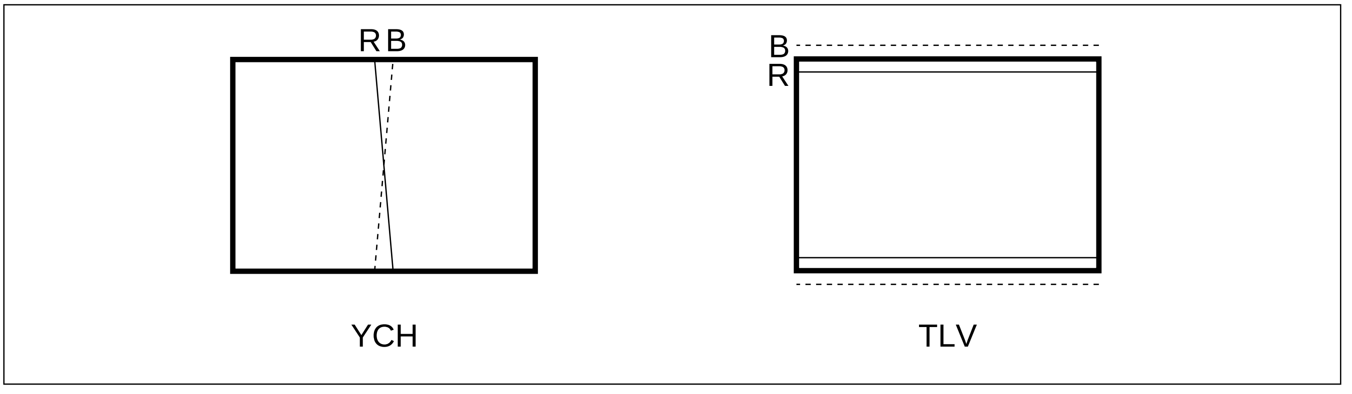
Note

1. The Red and Blue magnets should be equally far from the horizontal center line.
2. Do not separate the Red and Blue magnets too far. (Less than 8 mm)

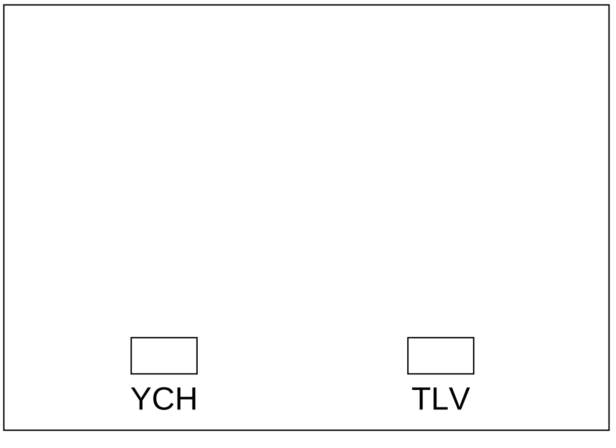
(2) Dynamic Convergence Adjustment

Preparation:

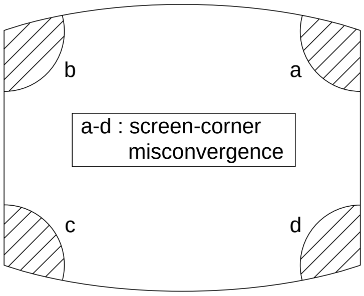
- Before starting this adjustment, adjust the horizontal static convergence and the vertical static convergence

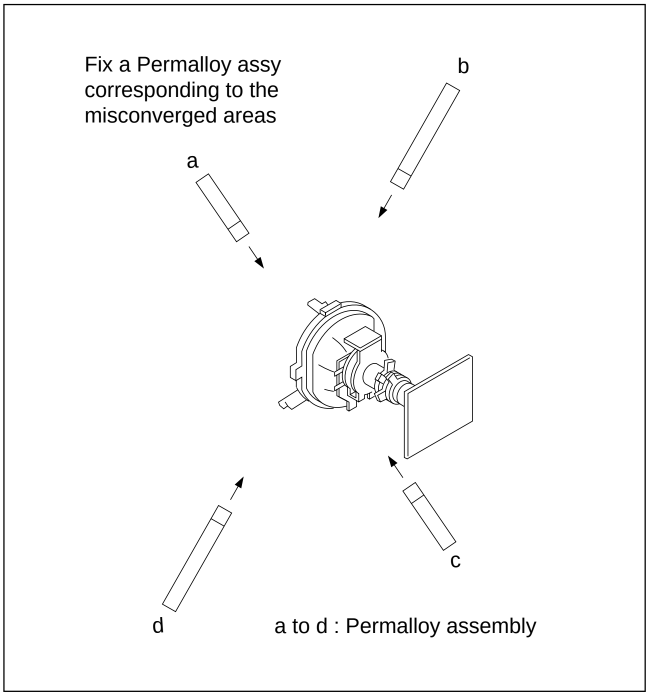


on DY



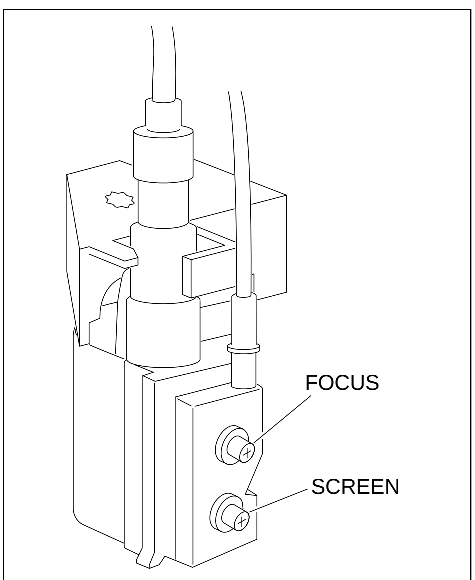
(3) Screen-corner Convergence





3-3. FOCUS ADJUSTMENT

Adjust FOCUS control on the flyback transformer for the best focus.

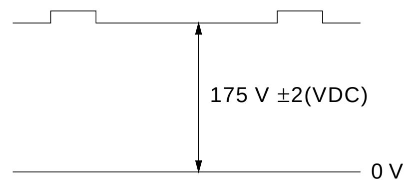


FLYBACK TRANSFORMER (T503)

3-4. G2 (SCREEN) AND WHITE BALANCE ADJUSTMENTS

1. G2 (SCREEN) ADJUSTMENT

1) Set the PICTURE to normal.
2) Put to VIDEO input mode without signals.
3) Connect R, G and B of the C3 board cathode to the oscilloscope.
4) Adjust BRIGHTNESS to obtain the cathode voltage to the value below.
5) Adjust G2 (Screen) on FBT until picture shows the point before cut-off.

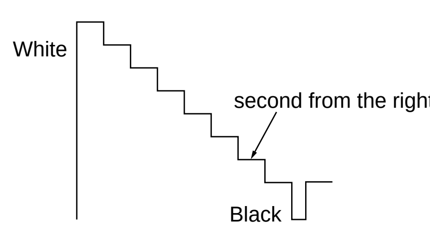


2. WHITE BALANCE ADJUSTMENT

1) Set to Service Mode (Refer Section 4-1: ADJUSTMENTS WITH COMMANDER).
2) Input white raster signal.
3) Set the PICTURE to minimum.
4) Select GCT (WHB 4) and BCT (WHB 5) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
5) Set the PICTURE to maximum.
6) Select GDR (WHB 1) and BDR (WHB 2) with [1] and [4], and adjust the level with [3] and [6] for the best white balance.
7) Write into the memory by pressing [MUTING] then [0].

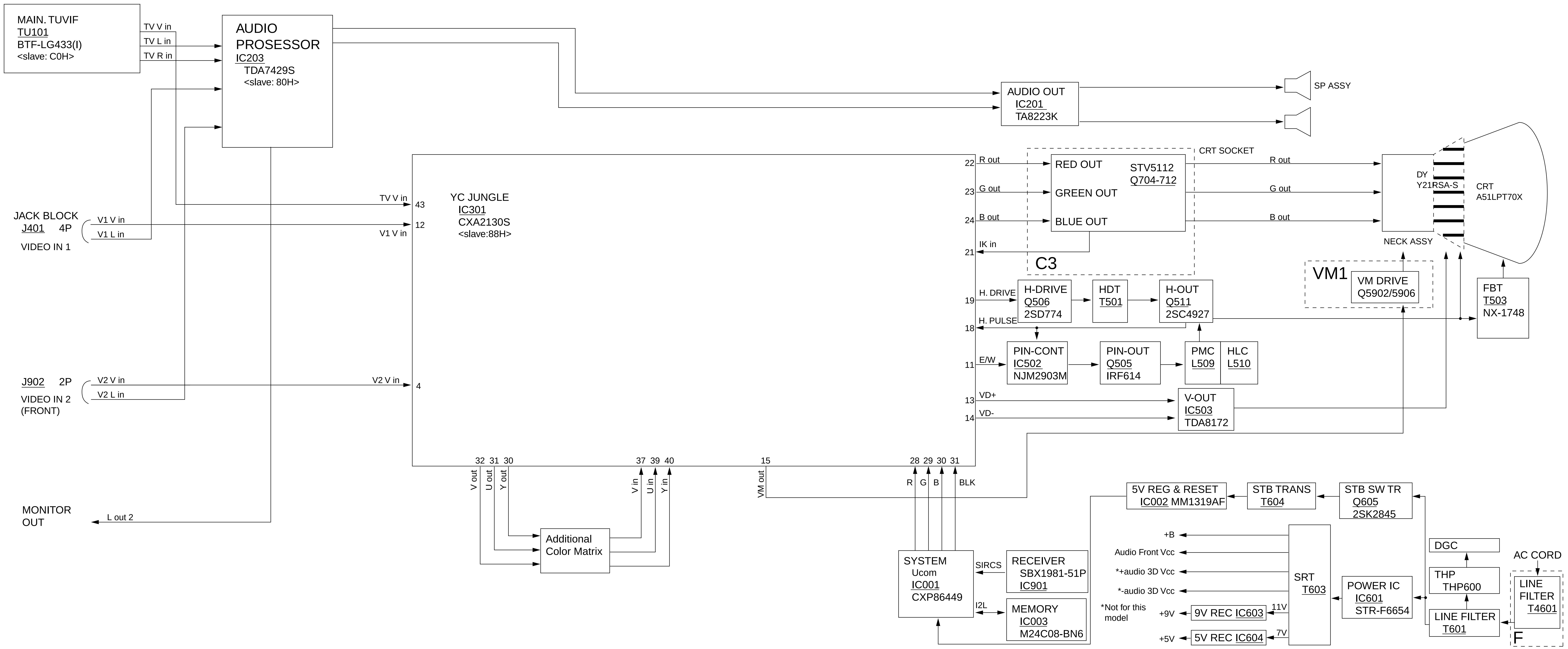
3. SUB BRIGHT ADJUSTMENT

1) Set to service mode.
2) Input a staircase signal of black to white from the pattern generator.
3) BRIGHTNESS .... 50%.
   PICTURE .... MINIMUM
4) Select SBR (WHB7) with [1] and [4], and adjust SBR (WHB7) level with [3] and [6] so that the second stripe from the right is dimly lit.

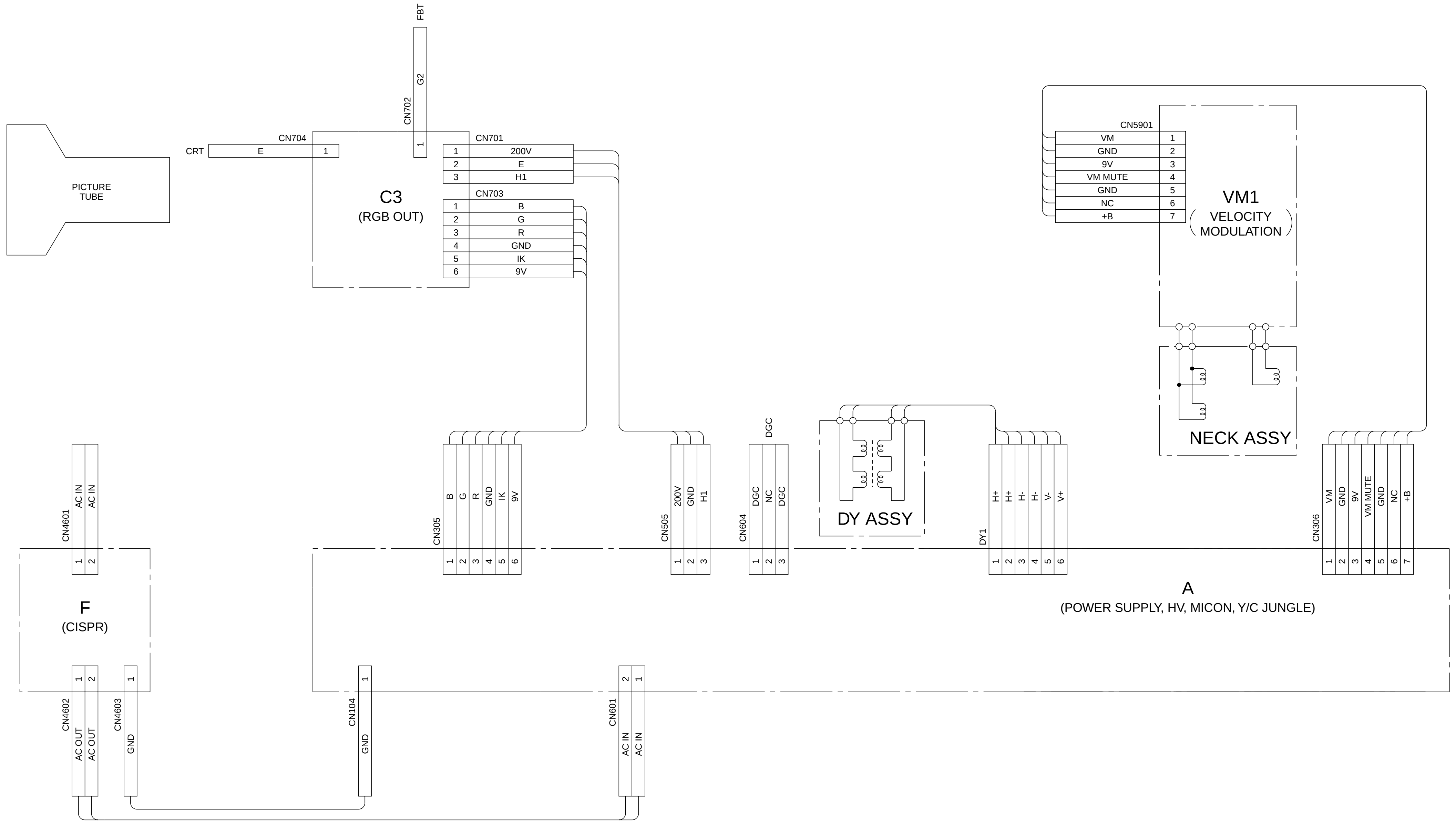


SECTION 5
DIAGRAM

5-1. BLOCK DIAGRAM

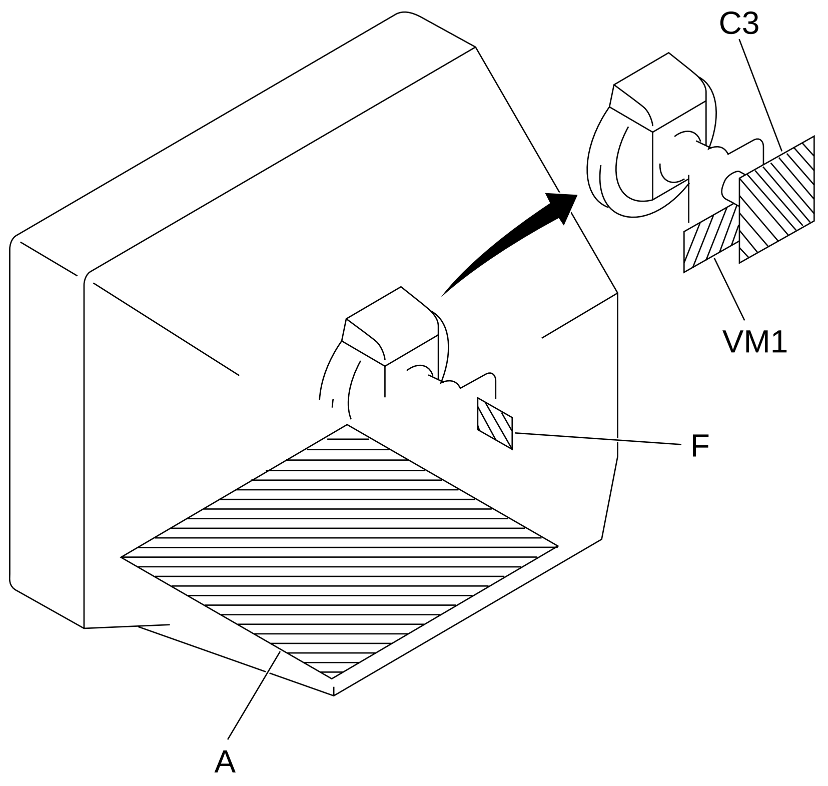


5-2. FRAME SCHEMATIC DIAGRAM



KV-2199XDK
RM-952

5-3. CIRCUIT BOARDS LOCATION



5-4. SCHEMATIC DIAGRAMS AND PRINTED WIRING BOARDS

Note:

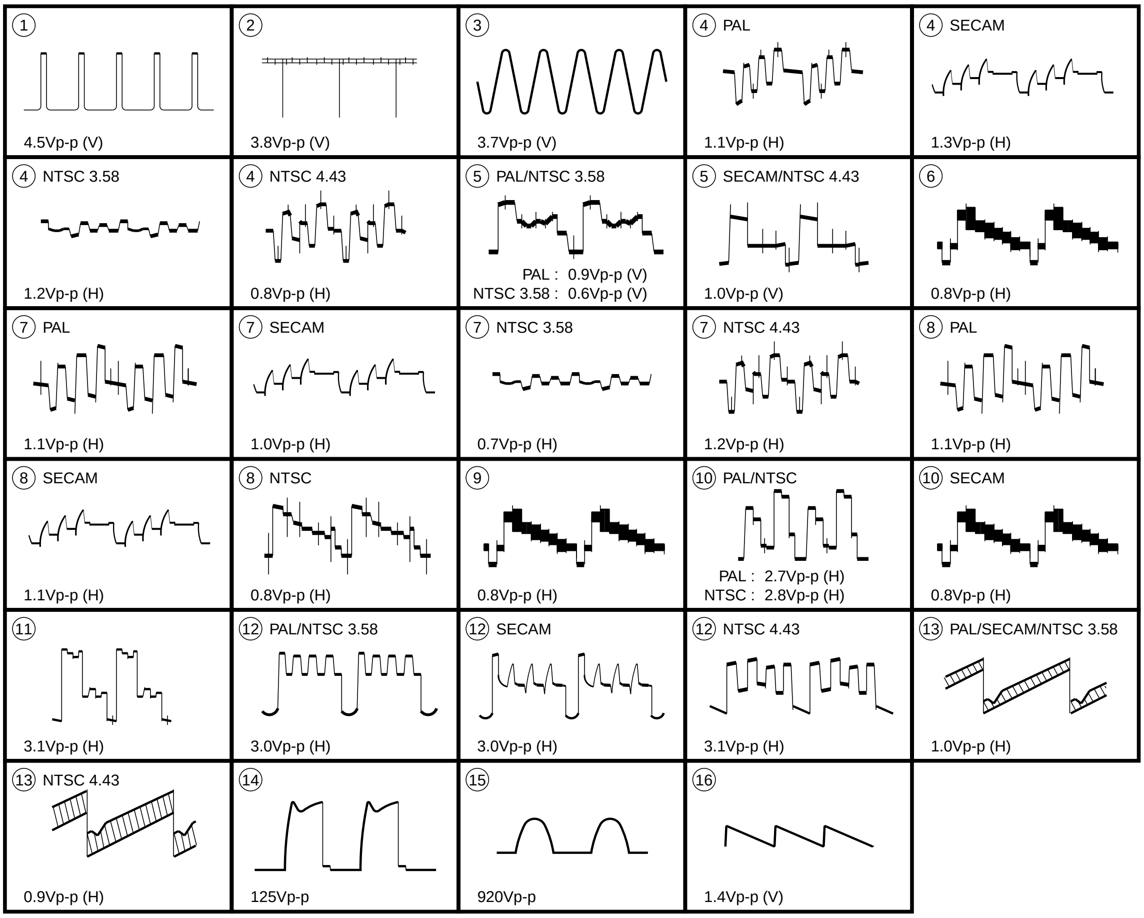
- All capacitors are in µF unless otherwise noted.
- All electrolytic capacitors are rated at 50V unless otherwise noted.
- All resistors are in ohms.
  kΩ = 1000Ω, MΩ = 1000kΩ
- Indication of resistance which does not have rating electrical power is as follows.
  Pitch: 5 mm
  Rating electrical power 1/4W (CHIP: 1/10W)
- (nonflammable resistor symbol) : nonflammable resistor.
- △ : internal component.
- ▭ : panel designation or adjustment for repair.
- All variable and adjustable resistors have characteristic curve B unless otherwise noted.
- **Readings are taken with a color-bar signal input.**
  no mark : PAL
  ( ) : SECAM
  [ ] : NTSC 3.58
  « » : NTSC 4.43
- **Readings are taken with a 10 MΩ digital multimeter.**
- **Voltage are dc with respect to ground unless otherwise noted.**
- **Voltage variations may be noted due to normal production tolerances.**
- **All voltages are in V.**
- *** : Cannot be measured.**
- **Circled numbers are waveform references.**
- **▬▬ : B + bus.**
- **▪ ▪ ▪ ▪ : B – bus.**
- **⇨ : signal path.**

Reference information

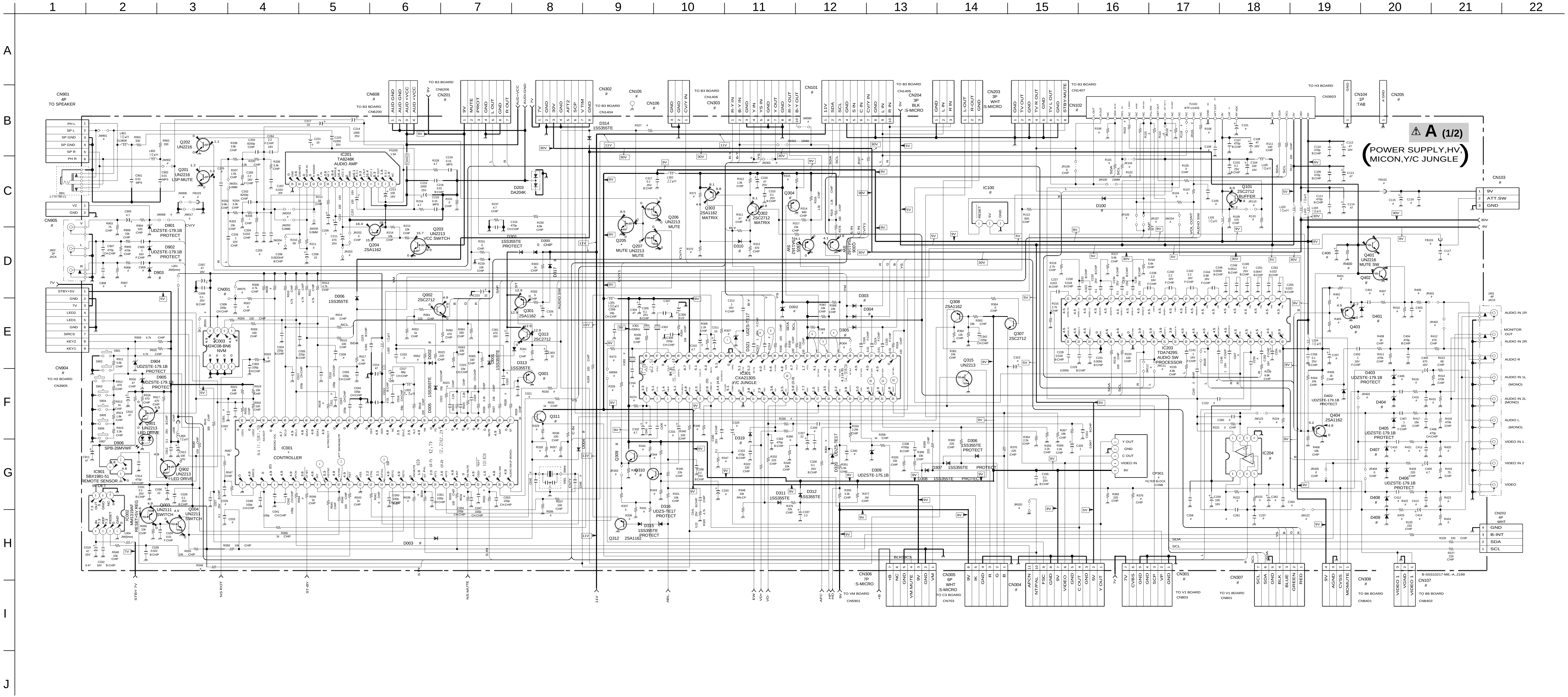
RESISTOR	: RN	METAL FILM
	: RC	SOLID
	: FPRD	NONFLAMMABLE CARBON
	: FUSE	NONFLAMMABLE FUSIBLE
	: RS	NONFLAMMABLE METAL OXIDE
	: RB	NONFLAMMABLE CEMENT
	: RW	NONFLAMMABLE WIREWOUND
	: ※	ADJUSTMENT RESISTOR
COIL	: LF-8L	MICRO INDUCTOR
CAPACITOR	: TA	TANTALUM
	: PS	STYROL
	: PP	POLYPROPYLENE
	: PT	MYLAR
	: MPS	METALIZED POLYESTER
	: MPP	METALIZED POLYPROPYLENE
	: ALB	BIPOLAR
	: ALT	HIGH TEMPERATURE
	: ALR	HIGH RIPPLE

Note: The component identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A BOARD WAVEFORMS



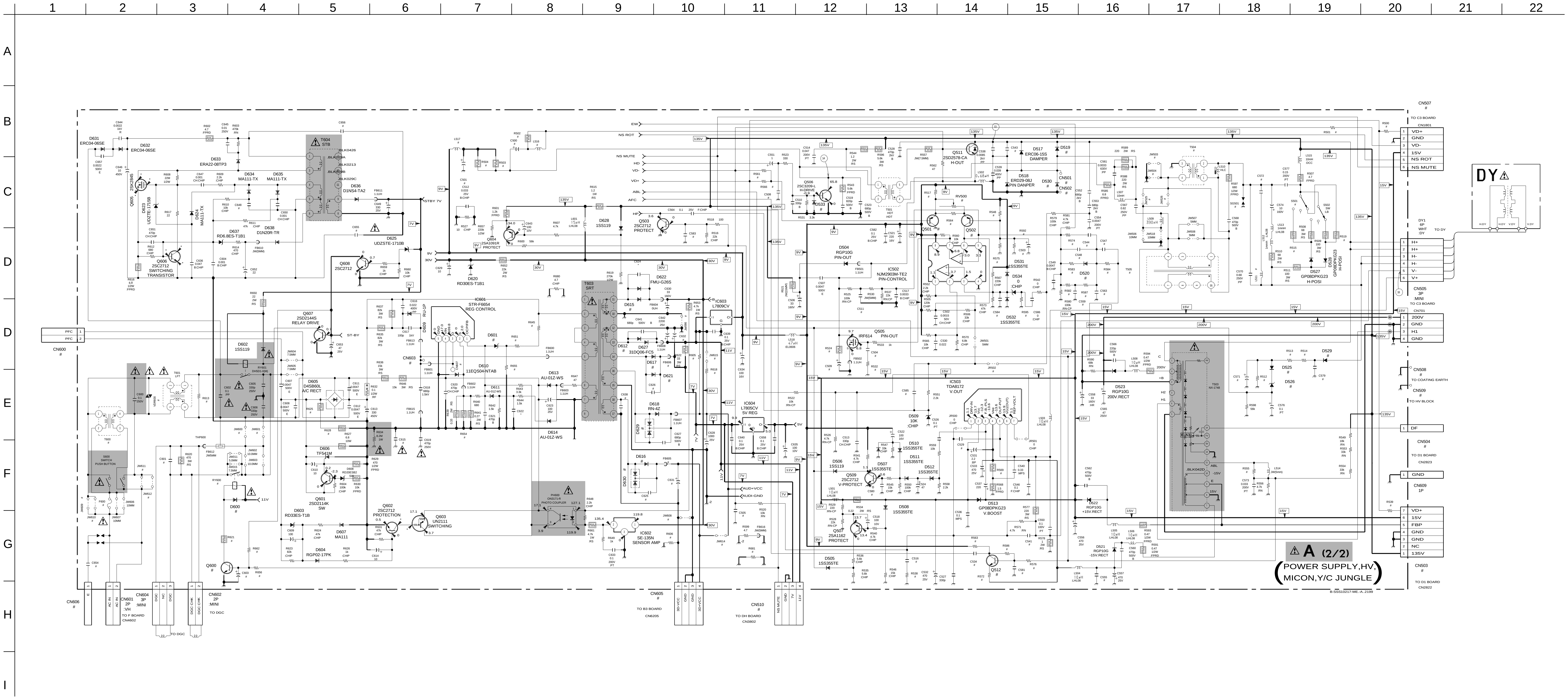
(1) Schematic Diagram of A1/2 board



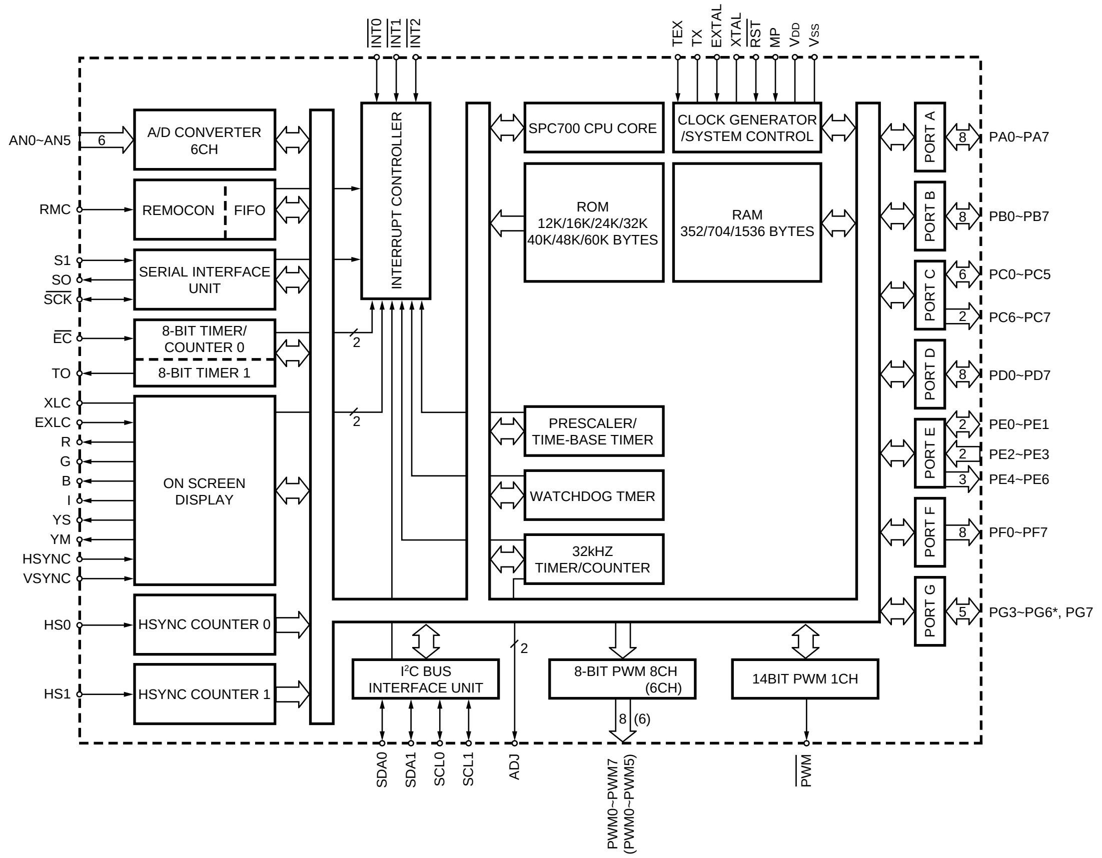
Schematic diagram
A (1/2) board

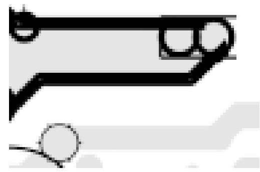
Schematic diagram
A (2/2) board

(2) Schematic Diagram of A2/2 board



A BOARD IC001 CXP86461-622S





NOTE:
The circuit indicated at left contains high voltage of over 600 Vp-p. Please pay attention when inspecting or repairing it to prevent an electric shock.

A BOARD

IC	
IC001	B-10
IC002	C-9
IC003	A-9
IC100	B-5
IC201	B-11
IC203	C-3
IC204	B-2
IC301	B-6
IC502	E-6
IC503	J-5
IC601	I-8
IC602	H-6
IC603	D-8
IC604	D-10
IC901	I-13
PH600	H-7

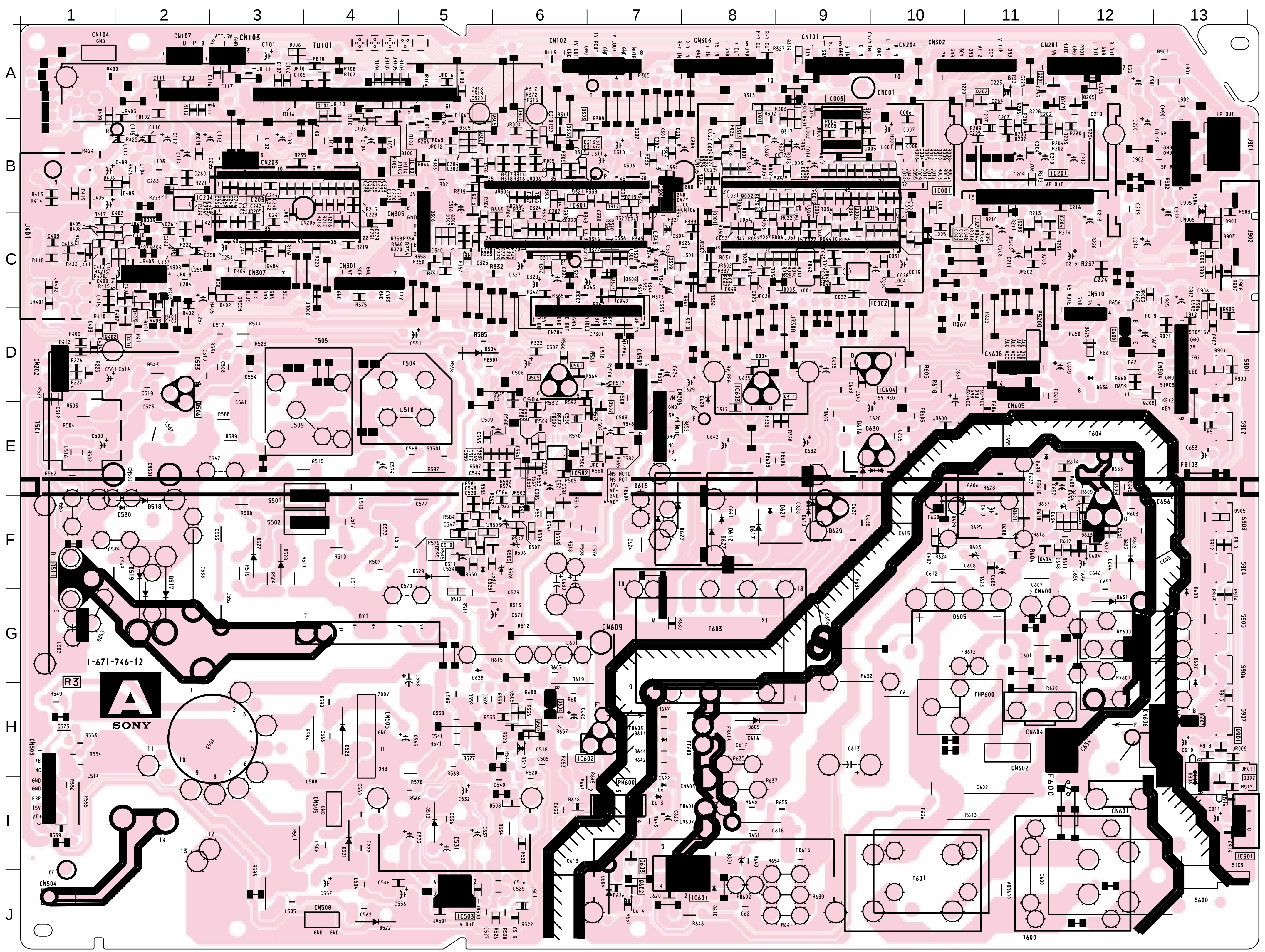
TRANSISTOR	
Q001	B-8
Q002	B-8
Q003	C-9
Q004	C-9
Q101	A-4
Q201	A-11
Q202	A-11
Q203	C-11
Q204	C-11
Q205	A-12
Q206	A-11
Q207	A-11
Q301	B-8
Q302	A-6
Q303	A-6
Q304	B-6
Q305	B-5
Q306	B-5
Q307	C-7
Q308	C-7
Q309	C-7
Q310	D-7
Q311	D-9
Q312	B-7
Q313	B-8
Q315	B-5
Q401	D-2
Q402	D-1
Q403	D-2
Q404	C-3
Q501	D-6
Q502	E-7
Q503	F-6
Q505	D-6
Q506	D-2
Q507	H-6
Q509	F-6
Q511	F-1
Q600	C-12
Q601	F-11
Q602	J-7
Q603	I-7
Q604	H-6
Q605	E-12
Q606	F-11
Q607	H-13
Q901	H-13
Q902	H-13

DIODE	
D001	B-8
D002	C-8
D003	C-9
D004	D-8
D005	B-8
D006	A-3
D203	C-11
D300	A-9
D301	B-9
D302	B-6
D303	B-5
D304	B-5
D305	B-5
D306	C-5
D307	C-5
D308	B-5
D309	B-6
D310	A-6
D311	C-6
D312	C-6
D313	A-8
D315	B-7
D316	C-7
D317	B-9
D314	A-9
D319	C-6
D320	C-6
D321	B-6
D401	D-2
D402	C-3
D403	B-1
D404	C-2
D405	C-1
D406	B-1
D407	C-2
D408	C-1
D409	A-1
D504	D-5
D505	H-6
D506	F-6
D507	F-6
D508	I-5
D509	E-6
D510	F-5
D511	F-5
D512	G-5
D513	I-5
D517	F-2
D518	F-2
D519	F-2
D520	E-5
D521	I-4
D522	J-4
D525	F-5
D526	F-6
D527	F-3
D528	F-3
D529	F-5
D530	F-2
D531	E-6
D532	E-6
D533	D-2
D534	E-6
D600	G-13
D601	I-8
D602	G-13
D603	F-11
D604	J-7
D605	G-10
D606	E-11
D607	F-10
D608	E-11
D609	H-8
D610	J-8
D611	I-7
D612	F-8
D613	I-7
D614	H-7
D615	E-7
D616	E-9
D617	F-8
D618	F-9
D620	D-8
D621	F-8
D622	F-7
D623	F-12
D624	F-12
D625	D-12
D627	F-8
D628	G-5
D629	F-9
D630	E-9
D631	G-12
D632	F-12
D633	E-12
D634	F-11
D635	F-12
D636	D-12
D637	F-11
D638	E-11
D901	C-13
D902	D-13
D903	C-13
D904	D-13
D905	F-13
D906	I-13

A [POWER SUPPLY, HV, MICON, Y/C JUNGLE]

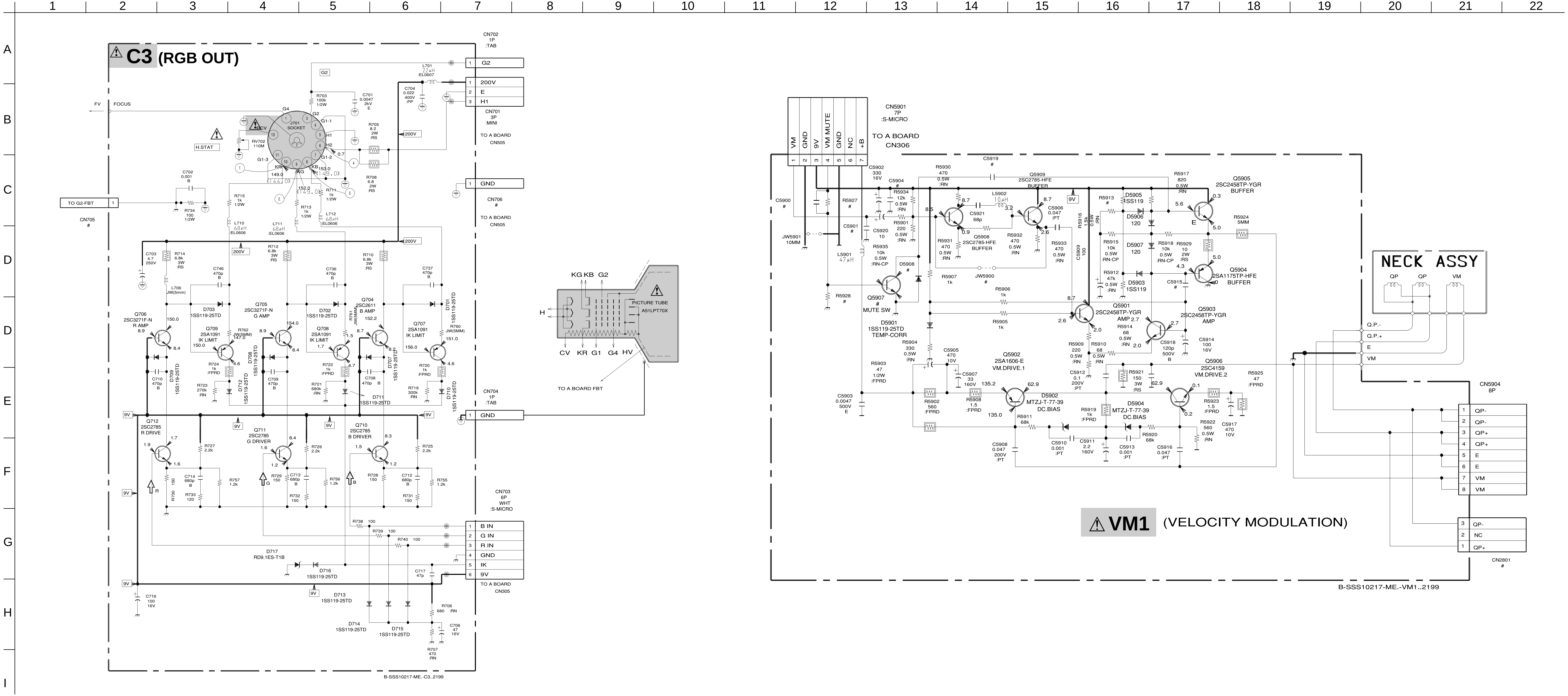
PRINTED WIRING BOARD

– A Board –



Schematic diagrams C3 VM1 boards ➡

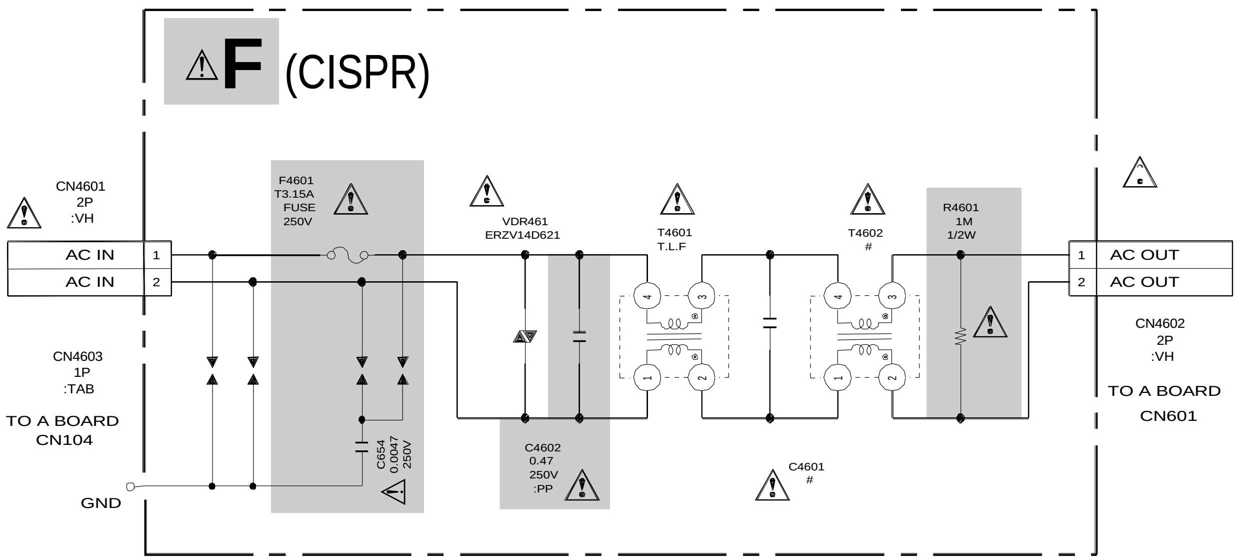
(3) Schematic Diagrams of C3 and VM1 boards



(4) Schematic Diagram of F board

1 2 3 4 5 6 7

A B C D D E F G H I

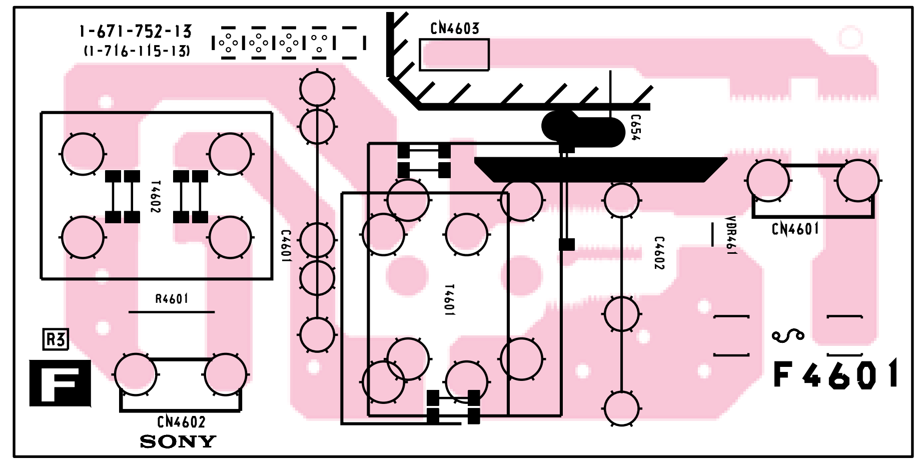


B-SSS10217-ME.-F..2199

F [CISPR]

PRINTED WIRING BOARD

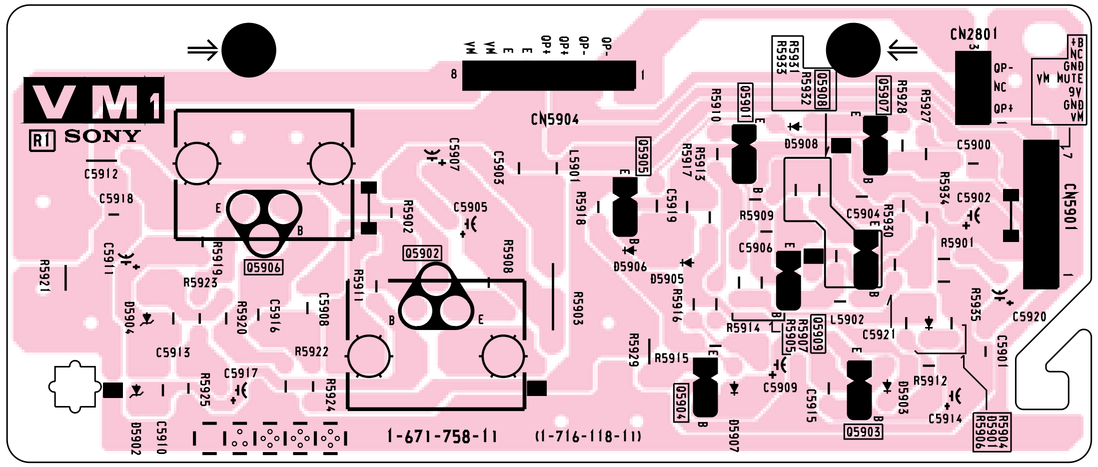
– F Board –



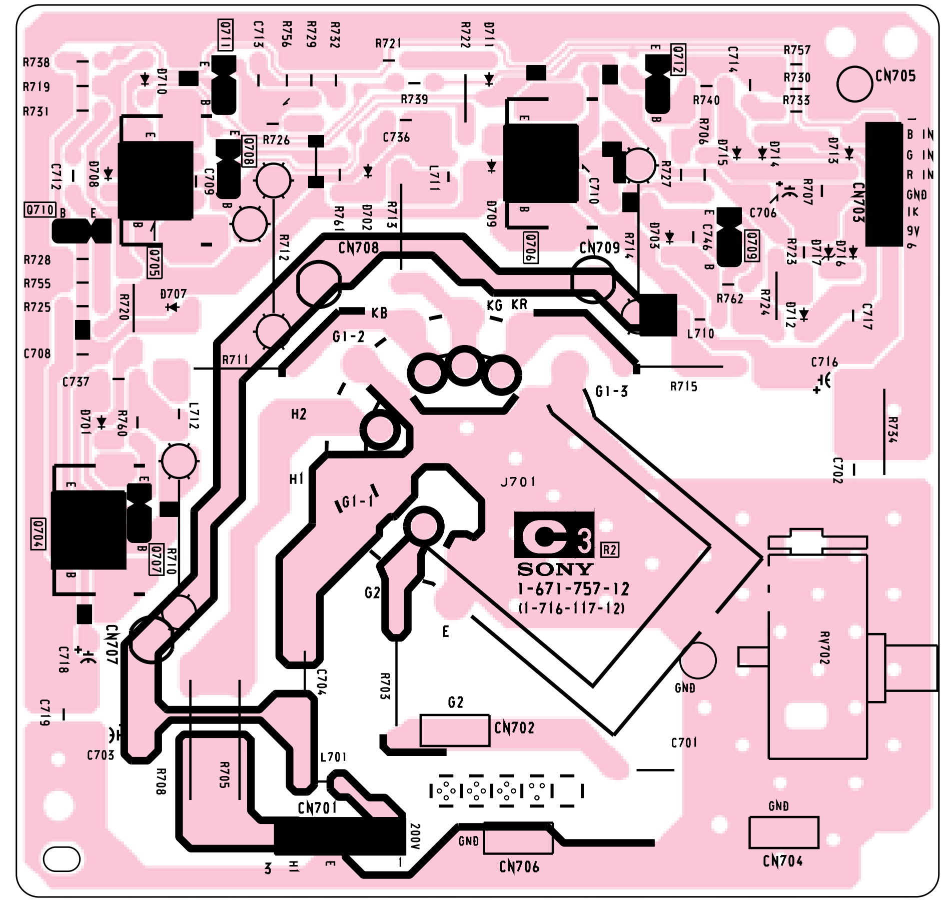
VM1 [VELOCITY MODULATION] **C3** [RGB OUT]

PRINTED WIRING BOARDS

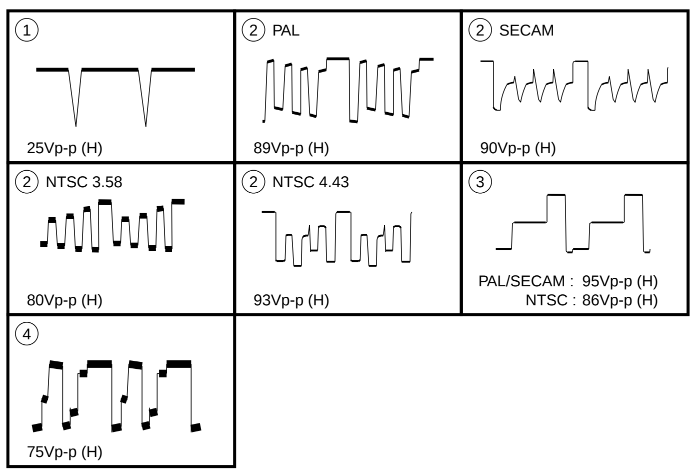
– VM1 Board –



– C3 Board –



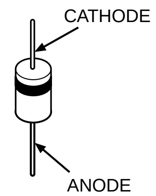
C3 BOARD WAVEFORMS



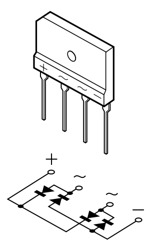
5-5. SEMICONDUCTORS

DIODE

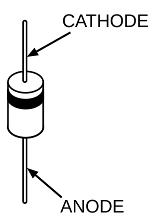
AK04V0
AU-01Z-V1
EL1Z
GP08D
RD33EB3T
RGP02-17EL-6433



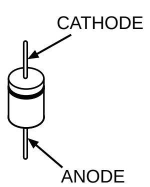
D4SB60L



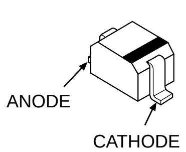
ERC04-06SE
RN4Z
RS3F3
31DQ06-FC5



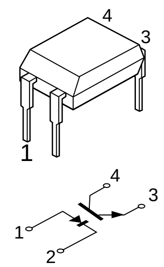
ERA22-08
ERD29-08J



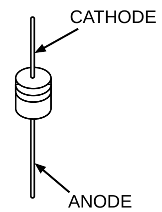
DTZ10B
DTZ-TT11-15B
RD10S-B
MA111-TX
UDZS-TE17-5.1B
UDZS-TE17-6.8B
UDZS-TE17-9.1B
1SS355TE-17



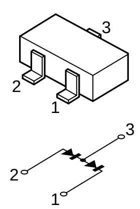
ON3171-R



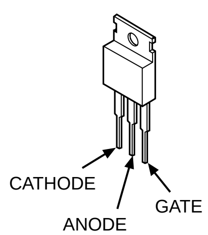
D1NS4
RD20ES-B2
RD30ESB2
RD39ES-B2
RD6.8ES-B1
RD9.1ES-L2
1SS119-25
11ES2-NTA2B
11EQS04



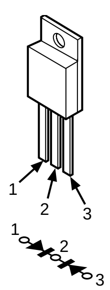
DA204K



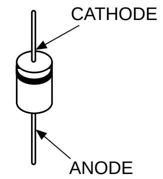
5P6M



FMU-G26S

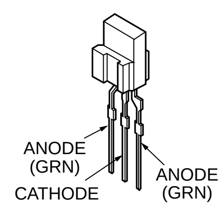


EG010CV0



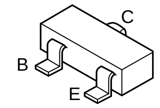
LED

SPB-26MVWF

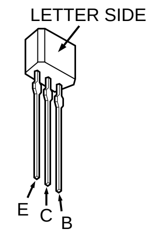


TRANSISTOR

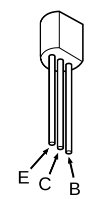
UN2111
UN2211
UN2213
UN2216
2SA1162-G
2SC2712-YG
2SD2114K



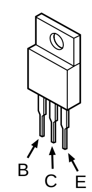
2SA1175-HFE
2SC2785-HFE



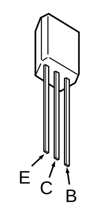
2SA1091-O



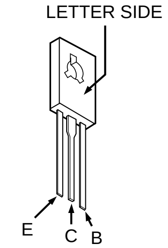
2SA1606-E
2SC4159-E



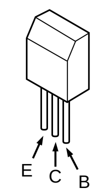
2SC2458-YGR
2SD2144S-UVW



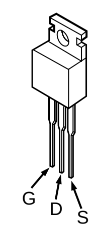
2SC2611



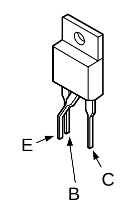
2SD774-34



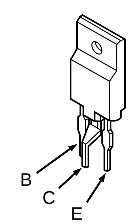
IRF614



2SK2845-LB102

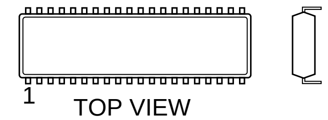


2SD2578-CA



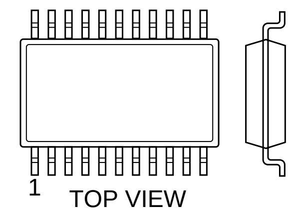
IC

CXA2139S (48PIN)
CXP86461-622S (64PIN)
M24C08-BN6 (8PIN)
TDA7429S (42PIN)



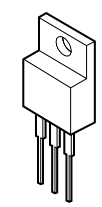
Dual In-line Package
Pin 6~98

MM1319AFBE (7PIN)
NJM2903M (8PIN)

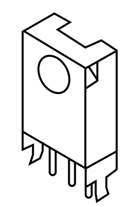


Single In -line Package
Pin 6~98

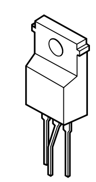
NJM78M09FA
TA7805S



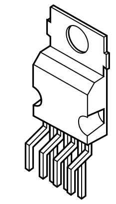
SBX1981-51P



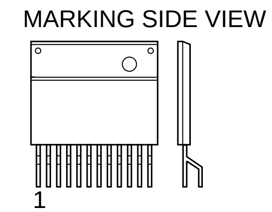
SE-135N



TDA8172

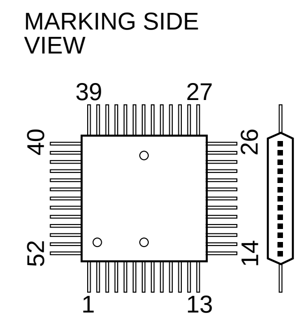


STR-F6654

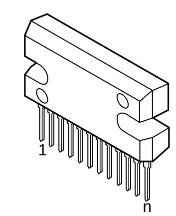


Zig-zag In -line Package
Pin 6~99

RU-1P



TA8223K



SECTION 6
EXPLODED VIEW

KV-2199XDK
RM-952

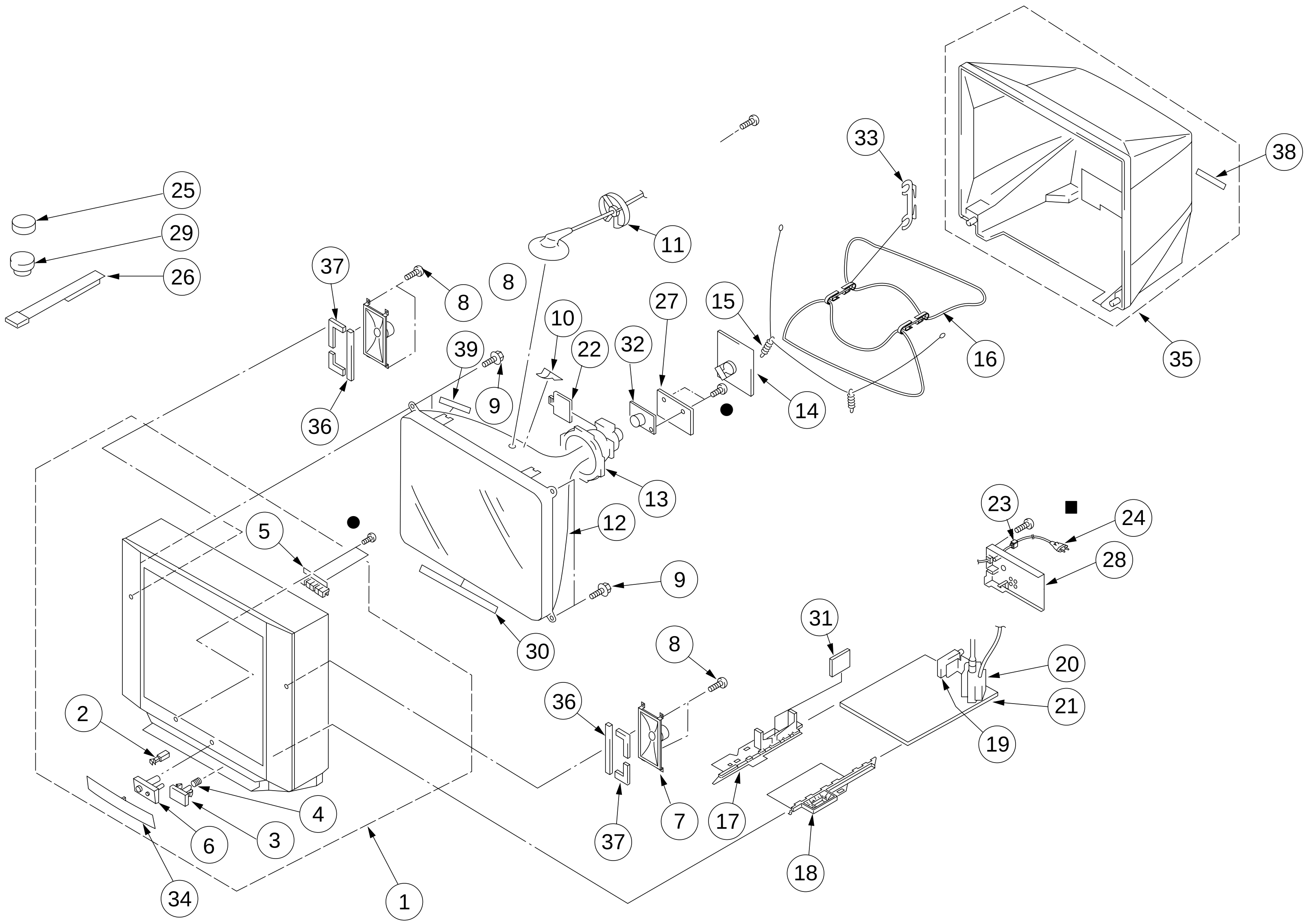
NOTE:

- Items with no part number and no description are not stocked because they are seldom required for routine service.
- The construction parts of an assembled part are indicated with a collation number in the remark column.
- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

> The components identified by shading and mark ⚠ are critical for safety.
> Replace only with part number specified.

6-1. CHASSIS

● : BVTP3 × 12 7-685-648-79
■ : BVTP4 × 16 7-685-663-71



REF. NO.	PART NO.	DESCRIPTION	REMARK
1	X-4036-416-3	BEZNET ASSY	
2	4-047-464-01	CATCHER, PUSH	
3	4-067-190-01	BUTTON,POWER	
4	4-036-405-11	SPRING, COMPRESSION	
5	4-067-196-01	BUTTON, MULTI	
6	* 4-067-197-01	GUIDE, LIGHT	
7	1-503-902-21	SPEAKER (15X6.5 CM)	
8	4-054-981-01	SCREW, STEP TAPPING	
9	4-365-808-21	SCREW (5), TAPPING	
10	4-046-600-11	SPACER, DY	
11	* 3-704-372-11	HOLDER, HV CABLE	
12	⚠ 8-738-809-05	PICTURE TUBE (A51LPT70X)	
13	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
14	* A-1331-884-A	C3 BOARD MOUNTED	
15	4-369-318-61	SPRING, TENSION	
16	⚠ 1-416-946-11	COIL, DEMAGNETIC	
17	* 4-067-189-01	PWB(L), GUIDE	
18	* 4-067-187-01	PWB(R), GUIDE	
19	8-598-449-10	TUNER, FSS BTF-LG433	
20	⚠ 1-453-293-11	TRANSFORMER ASSY, FLYBACK (NX-1748//M3A4)	
21	* A-1299-049-A	A BOARD COMPLETE	
22	4-057-714-01	PIECE ASSY, TLH CORRECTION	
23	4-022-115-00	HOLDER, AC CORD	
24	⚠ 1-574-062-61	CORD, POWER (WITH CONNECTOR) 2.5A/250V	
25	1-452-032-00	MAGNET,DISC	
26	4-051-736-41	PIECE A(90), CONV, CORRECT	
27	* A-1342-453-A	VM1 BOARD MOUNTED	
28	4-067-167-21	BRACKET,TERMINAL	
29	1-452-094-00	CIRCULAR DISC MAGNET B	
30	4-069-651-02	BLOTTING SHEET	
31	* A-1241-355-A	F BOARD MOUNTED	
32	8-453-011-31	NA299-S2	
33	4-064-883-11	HOLDER, DGC	
34	4-067-192-01	DOOR, CONTROL	
35	X-4036-627-1	COVER ASSY, REAR	
36	* 4-069-722-01	CUSHION, F	
37	* 4-069-216-02	CUSHION, SPEAKER	
38	4-067-006-01	LABEL, RUSSIAN (SBN)	
39	4-069-652-02	CUSHION (HS BAND)	

SECTION 7
ELECTRICAL PARTS LIST

A

NOTE:

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Items marked " * " are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.

- All resistors are in ohms
- F : nonflammable

CAPACITORS
- MF : μF, PF : μμF

COILS
- MMH : mH, UH : μH

REF.NO.	PART NO.	DESCRIPTION				REMARK
	* A-1299-049-A	A BOARD COMPLETE				
		********************				
	1-900-702-13	LEAD ASSY (1CORE),JUMPER				
	* 4-055-304-01	HOLDER, LED				
	* 4-067-182-03	HOLDER, FBT				
	4-382-854-11	SCREW (M3X10), P, SW (+)				
	4-382-854-21	SCREW (M3X14), P, SW (+)				
	7-685-648-79	SCREW +BVTP	3X12 TYPE2 IT-3			
		<CAPACITOR>				
C003	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C004	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C005	1-163-001-11	CERAMIC CHIP	220PF	10%	50V	
C006	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C007	1-104-664-11	ELECT	47MF	20%	16V	
C008	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C010	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C012	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C013	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V	
C014	1-104-664-11	ELECT	47MF	20%	25V	
C015	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V	
C016	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C017	1-163-113-00	CERAMIC CHIP	68PF	5%	50V	
C019	1-104-664-11	ELECT	47MF	20%	25V	
C022	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C023	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C024	1-163-227-11	CERAMIC CHIP	10PF	0.5PF	50V	
C026	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C027	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C028	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V	
C030	1-126-965-11	ELECT	22MF	20%	50V	
C031	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V	
C032	1-107-823-11	CERAMIC CHIP	0.47MF	10%	16V	
C034	1-163-031-11	CERAMIC CHIP	0.01MF		50V	
C041	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C042	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C043	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C044	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C047	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C048	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C050	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C051	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C053	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C054	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	
C055	1-163-251-11	CERAMIC CHIP	100PF	5%	50V	

REF.NO.	PART NO.	DESCRIPTION			REMARK
C103	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C104	1-104-665-11	ELECT	100MF	20%	10V
C107	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C108	1-104-664-11	ELECT	47MF	20%	16V
C109	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C110	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C111	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C112	1-104-664-11	ELECT	47MF	20%	16V
C113	1-104-664-11	ELECT	47MF	20%	25V
C114	1-126-967-11	ELECT	47MF	20%	50V
C202	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C203	1-163-020-00	CERAMIC CHIP	0.0082MF	10%	50V
C204	1-136-159-00	FILM	0.033MF	5%	50V
C205	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C206	1-164-161-11	CERAMIC CHIP	0.0022MF	10%	50V
C207	1-136-159-00	FILM	0.033MF	5%	50V
C208	1-126-965-11	ELECT	22MF	20%	50V
C209	1-126-965-11	ELECT	22MF	20%	50V
C210	1-126-933-11	ELECT	100MF	20%	16V
C211	1-126-941-11	ELECT	470MF	20%	25V
C212	1-126-933-11	ELECT	100MF	20%	16V
C213	1-126-933-11	ELECT	100MF	20%	16V
C214	1-126-942-61	ELECT	1000MF	20%	25V
C215	1-126-942-61	ELECT	1000MF	20%	25V
C216	1-163-021-91	CERAMIC CHIP	0.01MF	10%	50V
C217	1-126-964-11	ELECT	10MF	20%	50V
C218	1-136-167-00	FILM	0.15MF	5%	50V
C219	1-136-167-00	FILM	0.15MF	5%	50V
C220	1-126-942-61	ELECT	1000MF	20%	25V
C221	1-126-964-11	ELECT	10MF	20%	50V
C223	1-126-965-11	ELECT	22MF	20%	50V
C224	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C226	1-109-982-11	CERAMIC CHIP	1MF	10%	10V
C227	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C228	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V
C229	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V
C230	1-163-024-00	CERAMIC CHIP	0.018MF	10%	50V
C231	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V
C232	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C233	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C234	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C235	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C236	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C238	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C240	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C241	1-164-346-11	CERAMIC CHIP	1MF		16V
C242	1-164-505-11	CERAMIC CHIP	2.2MF		16V

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C243	1-216-295-91	SHORT	0		
C244	1-164-700-11	CERAMIC CHIP	0.68MF		16V
C245	1-164-346-11	CERAMIC CHIP	1MF		16V
C246	1-163-018-00	CERAMIC CHIP	0.0056MF	10%	50V
C248	1-163-010-11	CERAMIC CHIP	0.0012MF	10%	50V
C249	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C251	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C252	1-164-346-11	CERAMIC CHIP	1MF		16V
C253	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C254	1-126-965-11	ELECT	22MF	20%	50V
C255	1-163-037-11	CERAMIC CHIP	0.022MF	10%	50V
C256	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C259	1-126-933-11	ELECT	100MF	20%	16V
C264	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C265	1-164-505-11	CERAMIC CHIP	2.2MF		16V
C301	1-126-935-11	ELECT	470MF	20%	16V
C302	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C303	1-126-964-11	ELECT	10MF	20%	50V
C304	1-126-967-11	ELECT	47MF	20%	50V
C305	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C306	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C307	1-163-233-11	CERAMIC CHIP	18PF	5%	50V
C308	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C309	1-126-957-11	ELECT	0.22MF	20%	50V
C310	1-126-963-11	ELECT	4.7MF	20%	50V
C311	1-126-964-11	ELECT	10MF	20%	50V
C312	1-164-346-11	CERAMIC CHIP	1MF		16V
C313	1-164-346-11	CERAMIC CHIP	1MF		16V
C315	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C316	1-104-664-11	ELECT	47MF	20%	25V
C317	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C318	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C319	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C320	1-163-031-11	CERAMIC CHIP	0.01MF		50V
C322	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C324	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C325	1-126-960-11	ELECT	1MF	20%	50V
C327	1-126-965-11	ELECT	22MF	20%	50V
C328	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C330	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C332	1-126-963-11	ELECT	4.7MF	20%	50V
C335	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C336	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C337	1-126-961-11	ELECT	2.2MF	20%	50V
C338	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C341	1-115-340-11	CERAMIC CHIP	0.22MF	10%	25V
C342	1-163-259-91	CERAMIC CHIP	220PF	5%	50V
C402	1-164-346-11	CERAMIC CHIP	1MF		16V
C404	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C405	1-126-935-11	ELECT	470MF	20%	16V
C407	1-164-346-11	CERAMIC CHIP	1MF		16V
C408	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C409	1-126-963-11	ELECT	4.7MF	20%	50V
C502	1-163-145-00	CERAMIC CHIP	0.0015MF	5%	50V
C506	1-107-638-11	ELECT	33MF	20%	160V
C507	1-161-830-00	CERAMIC	0.0047MF		500V
C510	1-102-112-00	CERAMIC	330PF	10%	50V
C512	1-163-989-11	CERAMIC CHIP	0.033MF	10%	25V
C513	1-163-263-11	CERAMIC CHIP	330PF	5%	50V
C514	1-106-383-00	MYLAR	0.047MF	10%	200V
C517	1-164-182-11	CERAMIC CHIP	0.0033MF	10%	50V
C518	1-104-665-11	ELECT	100MF	20%	10V
C519	1-102-212-00	CERAMIC	820PF	10%	500V
C521	1-126-934-11	ELECT	220MF	20%	16V
C522	1-126-933-11	ELECT	100MF	20%	16V
C523	1-102-002-00	CERAMIC	680PF	10%	500V
C524	1-126-967-11	ELECT	47MF	20%	50V
C526	1-130-495-00	MYLAR	0.1MF	5%	50V
C527	1-102-820-00	CERAMIC	330PF	5%	50V
C528	1-162-134-11	CERAMIC	470PF	10%	2KV
C530	1-137-372-11	FILM	0.022MF	5%	50V
C531	1-126-961-11	ELECT	2.2MF	20%	50V
C532	1-126-941-11	ELECT	470MF	20%	25V
C533	1-126-941-11	ELECT	470MF	20%	25V
C536	1-136-165-00	FILM	0.1MF	5%	50V
C537	1-126-969-11	ELECT	220MF	20%	50V
C538	1-136-076-00	FILM	0.0085MF	3%	2KV
C539	1-129-746-91	FILM	0.039MF	5%	400V
C540	1-136-171-00	FILM	0.33MF	5%	50V
C546	1-165-319-11	CERAMIC CHIP	0.1MF		50V
C549	1-163-017-00	CERAMIC CHIP	0.0047MF	10%	50V
C550	1-106-220-00	MYLAR	0.1MF	10%	100V
C551	1-126-960-11	ELECT	1MF	20%	50V
C552	1-162-116-00	CERAMIC	680PF	10%	2KV
C553	1-162-116-00	CERAMIC	680PF	10%	2KV
C554	1-137-417-11	MYLAR	0.0047MF	10%	200V
C556	1-126-941-11	ELECT	470MF	20%	25V
C557	1-126-941-11	ELECT	470MF	20%	25V
C558	1-123-024-21	ELECT	33MF		160V
C560	1-102-228-00	CERAMIC	470PF	10%	500V
C561	1-129-708-91	FILM	0.0033MF	5%	630V
C562	1-102-228-00	CERAMIC	470PF	10%	500V
C564	1-163-038-91	CERAMIC CHIP	0.1MF		25V
C565	1-107-655-11	ELECT	47MF	20%	250V
C566	1-102-244-00	CERAMIC	220PF	10%	500V
C567	1-115-521-11	FILM	0.82MF	5%	250V
C568	1-102-228-00	CERAMIC	470PF	10%	500V
C570	1-115-520-11	FILM	0.68MF	5%	250V
C573	1-106-379-12	MYLAR	0.033MF	10%	200V
C574	1-107-636-11	ELECT	10MF	20%	160V
C576	1-130-495-00	MYLAR	0.1MF	5%	50V
C577	1-106-395-00	MYLAR	0.15MF	10%	200V
C582	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C586	1-216-295-91	SHORT	0		
C600	⚠ 1-104-705-11	FILM	0.1MF	20%	250V
C602	⚠ 1-104-705-11	FILM	0.1MF	20%	250V
C604	1-163-009-11	CERAMIC CHIP	0.001MF	10%	50V
C605	⚠ 1-127-942-51	CERAMIC	330PF	10%	250V
C606	⚠ 1-127-942-51	CERAMIC	330PF	10%	250V
C607	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C608	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C609	1-126-968-11	ELECT	100MF	20%	50V
C610	1-126-964-11	ELECT	10MF	20%	50V
C611	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C612	1-161-830-00	CERAMIC	0.0047MF	99%	500V
C613	1-117-752-11	ELECT(BLOCK)	330MF	20%	450V

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REF. NO.	PART NO.	DESCRIPTION			REMARK
C614	1-126-964-11	ELECT	10MF	20%	50V
C616	1-130-202-00	FILM	0.022MF	10%	400V
C617	1-107-792-11	CERAMIC	100PF	5%	1KV
C618	1-125-893-11	FILM	680PF	3%	1.5KV
C619	1-119-886-51	CERAMIC	470PF	10%	250V
C620	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C621	1-102-114-00	CERAMIC	470PF	10%	50V
C622	1-102-074-00	CERAMIC	0.001MF	10%	50V
C623	1-104-665-11	ELECT	100MF	20%	25V
C624	1-104-331-11	CERAMIC	0.0022MF	10%	1KV
C627	1-102-002-00	CERAMIC	680PF	10%	500V
C628	1-126-942-61	ELECT	1000MF	20%	25V
C629	1-126-964-11	ELECT	10MF	20%	50V
C630	1-123-024-21	ELECT	33MF		160V
C633	1-104-999-11	MYLAR	0.1MF	10%	200V
C634	1-126-933-11	ELECT	100MF	20%	16V
C635	1-104-665-11	ELECT	100MF	20%	10V
C636	1-104-760-11	CERAMIC CHIP	0.047MF	10%	50V
C639	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C640	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C641	1-102-002-00	CERAMIC	680PF	10%	500V
C642	1-126-943-11	ELECT	2200MF	20%	25V
C643	1-104-665-11	ELECT	100MF	20%	10V
C644	1-104-331-11	CERAMIC	0.0022MF	10%	1KV
C645	1-137-605-11	FILM	0.01MF	10%	250V
C646	1-107-679-91	ELECT	10MF	20%	450V
C647	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C649	1-126-940-11	ELECT	330MF	20%	25V
C650	1-163-275-11	CERAMIC CHIP	0.001MF	5%	50V
C651	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C652	1-126-965-11	ELECT	22MF	20%	50V
C653	1-104-664-11	ELECT	47MF	20%	25V
C657	1-101-821-00	CERAMIC	0.0022MF		500V
C658	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C901	1-136-153-00	FILM	0.01MF	5%	50V
C902	1-136-153-00	FILM	0.01MF	5%	50V
C905	1-126-963-11	ELECT	4.7MF	20%	50V
C906	1-164-346-11	CERAMIC CHIP	1MF		16V
C907	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
C910	1-126-967-11	ELECT	47MF	20%	50V
C911	1-126-967-11	ELECT	47MF	20%	50V
C912	1-164-004-11	CERAMIC CHIP	0.1MF	10%	25V
C913	1-104-665-11	ELECT	100MF	20%	10V
C914	1-163-133-00	CERAMIC CHIP	470PF	5%	50V
		<CONNECTOR>			
CN104	1-695-915-11	TAB (CONTACT)			
CN202	* 1-785-608-11	PIN, CONNECTOR 4P			
CN203	* 1-564-506-11	PLUG, CONNECTOR 3P			
CN204	* 1-564-506-11	PLUG, CONNECTOR 3P			
CN305	* 1-564-509-11	PLUG, CONNECTOR 6P			
CN306	* 1-564-510-11	PLUG, CONNECTOR 7P			
CN505	1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P			
CN506	4-352-844-01	PIN, LEAD, COATING			
CN601	* 1-580-843-11	PIN, CONNECTOR (POWER)			
CN602	* 1-508-786-00	PIN, CONNECTOR (5MM PITCH) 2P			

REF. NO.	PART NO.	DESCRIPTION			REMARK
CN604	* 1-573-963-11	PIN, CONNECTOR (PC BOARD) 3P			
CN609	* 1-508-784-21	PIN, CONNECTOR (5MM PITCH) 1P			
CN901	* 1-564-507-11	PLUG, CONNECTOR 4P			
		<DIODE>			
D001	8-719-988-61	DIODE 1SS355TE-17			
D005	8-719-988-61	DIODE 1SS355TE-17			
D006	8-719-988-61	DIODE 1SS355TE-17			
D203	8-719-914-42	DIODE DA204K			
D300	1-216-295-91	SHORT	0		
D301	8-719-988-61	DIODE 1SS355TE-17			
D306	8-719-988-61	DIODE 1SS355TE-17			
D307	8-719-988-61	DIODE 1SS355TE-17			
D308	8-719-988-61	DIODE 1SS355TE-17			
D309	8-719-069-54	DIODE UDZS-TE17-5.1B			
D311	8-719-988-61	DIODE 1SS355TE-17			
D312	8-719-988-61	DIODE 1SS355TE-17			
D313	8-719-988-61	DIODE 1SS355TE-17			
D314	8-719-988-61	DIODE 1SS355TE-17			
D315	8-719-988-61	DIODE 1SS355TE-17			
D316	8-719-069-57	DIODE UDZS-TE17-6.8B			
D320	8-719-069-60	DIODE UDZS-TE17-9.1B			
D321	8-719-069-60	DIODE UDZS-TE17-9.1B			
D402	8-719-069-60	DIODE UDZS-TE17-9.1B			
D403	8-719-069-60	DIODE UDZS-TE17-9.1B			
D405	8-719-069-60	DIODE UDZS-TE17-9.1B			
D406	8-719-069-60	DIODE UDZS-TE17-9.1B			
D504	8-719-302-43	DIODE EL1Z			
D505	8-719-988-61	DIODE 1SS355TE-17			
D506	8-719-911-19	DIODE 1SS119-25			
D507	8-719-988-61	DIODE 1SS355TE-17			
D508	8-719-988-61	DIODE 1SS355TE-17			
D509	1-216-073-00	RES,CHIP	10K	5%	1/10W
D510	8-719-988-61	DIODE 1SS355TE-17			
D511	8-719-988-61	DIODE 1SS355TE-17			
D512	8-719-988-61	DIODE 1SS355TE-17			
D513	8-719-908-03	DIODE GP08D			
D517	8-719-945-80	DIODE ERC06-15S			
D518	8-719-900-26	DIODE ERD29-08J			
D521	8-719-302-43	DIODE EL1Z			
D522	8-719-302-43	DIODE EL1Z			
D523	8-719-302-43	DIODE EL1Z			
D527	8-719-908-03	DIODE GP08D			
D528	8-719-908-03	DIODE GP08D			
D531	8-719-988-61	DIODE 1SS355TE-17			
D532	8-719-988-61	DIODE 1SS355TE-17			
D534	1-216-295-91	SHORT	0		
D602	8-719-911-19	DIODE 1SS119-25			
D603	8-719-150-92	DIODE RD33EB3T			
D604	8-719-028-72	DIODE RGP02-17EL-6433			
D605	8-719-510-53	DIODE D4SB60L			
D606	8-719-108-18	THYRISTOR 5P6M			
D607	8-719-073-01	DIODE MA111-(K8).S0			
D608	8-719-110-53	DIODE RD20ESB2			
D609	8-719-311-31	DIODE RU-1P			
D610	8-719-210-21	DIODE 11EQS04			
D611	8-719-046-74	DIODE AU-01Z-V1			

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REF. NO.	PART NO.	DESCRIPTION		REMARK
D611	8-719-075-73	DIODE 10ELS2N-TB5		
D613	8-719-046-74	DIODE AU-01Z-V1		
D614	8-719-046-74	DIODE AU-01Z-V1		
D618	8-719-067-18	DIODE RN4Z		
D620	8-719-110-72	DIODE RD30ESB2		
D622	8-719-071-39	DIODE FMU-G26S		
D623	8-719-978-65	DIODE DTZ-TT11-15B		
D624	8-719-073-01	DIODE MA111-(K8).S0		
D625	8-719-977-28	DIODE DTZ10B		
D627	8-719-073-84	DIODE 31DQ06-FC5		
D628	8-719-911-19	DIODE 1SS119-25		
D631	8-719-068-00	DIODE ERC04-06SE		
D632	8-719-068-00	DIODE ERC04-06SE		
D633	8-719-948-45	DIODE ERA22-08		
D634	8-719-073-01	DIODE MA111-(K8).S0		
D635	8-719-073-01	DIODE MA111-(K8).S0		
D636	8-719-510-02	DIODE D1NS4		
D637	8-719-109-96	DIODE RD6.8ESB1		
D638	8-719-024-99	DIODE 11ES2-NTA2B		
D901	8-719-069-60	DIODE UDZS-TE17-9.1B		
D902	8-719-069-60	DIODE UDZS-TE17-9.1B		
D904	8-719-069-60	DIODE UDZS-TE17-9.1B		
D905	8-719-069-60	DIODE UDZS-TE17-9.1B		
D906	8-719-045-19	DIODE SPB-26MVWF		
		<CONNECTOR>		
DY1	* 1-580-798-11	CONNECTOR PIN (DY) 6P		
		<FERRITE BEAD>		
FB501	1-410-397-21	FERRITE	1.1UH	
FB502	1-410-397-21	FERRITE	1.1UH	
FB600	1-410-397-21	FERRITE	1.1UH	
FB601	1-410-397-21	FERRITE	1.1UH	
FB602	1-410-397-21	FERRITE	1.1UH	
FB603	1-410-397-21	FERRITE	1.1UH	
FB604	1-412-911-31	FERRITE	0UH	
FB607	1-410-397-21	FERRITE	1.1UH	
FB608	1-412-911-31	FERRITE	0UH	
FB611	1-410-397-21	FERRITE	1.1UH	
FB613	1-410-397-21	FERRITE	1.1UH	
FB615	1-410-397-21	FERRITE	1.1UH	
		<IC>		
IC001	8-752-906-20	IC CXP86449-622S		
IC002	8-759-371-21	IC MM1319AFBE		
IC003	8-759-527-71	IC M24C08-BN6		
IC201	8-759-336-30	IC TA8223K		
IC203	8-759-553-40	IC TDA7429S		
IC301	8-752-090-41	IC CXA2139S		
IC502	8-759-700-07	IC NJM2903M		
IC503	8-759-980-58	IC TDA8172		
IC601	8-749-013-75	IC STR-F6654		
IC602	8-749-920-61	IC SE-135N		

REF. NO.	PART NO.	DESCRIPTION		REMARK
IC603	8-759-701-59	IC NJM78M09FA		
IC604	8-759-231-53	IC TA7805S		
IC901	8-742-134-00	HYB IC SBX1981-51P		
		<JACK>		
J401	1-779-849-11	JACK BLOCK, PIN 4P		
J901	1-770-786-21	JACK		
J902	1-779-205-11	JACK, PIN 2P		
		<CHIP CONDUCTOR>		
JR001	1-216-295-91	SHORT	0	
JR002	1-216-295-91	SHORT	0	
JR003	1-216-295-91	SHORT	0	
JR004	1-216-295-91	SHORT	0	
JR005	1-216-295-91	SHORT	0	
JR006	1-216-295-91	SHORT	0	
JR007	1-216-295-91	SHORT	0	
JR008	1-216-295-91	SHORT	0	
JR009	1-216-295-91	SHORT	0	
JR010	1-216-295-91	SHORT	0	
JR011	1-216-295-91	SHORT	0	
JR012	1-216-295-91	SHORT	0	
JR013	1-216-295-91	SHORT	0	
JR014	1-216-295-91	SHORT	0	
JR015	1-216-295-91	SHORT	0	
JR016	1-216-295-91	SHORT	0	
JR018	1-216-295-91	SHORT	0	
JR019	1-216-295-91	SHORT	0	
JR102	1-216-295-91	SHORT	0	
JR109	1-216-295-91	SHORT	0	
JR202	1-216-295-91	SHORT	0	
JR301	1-216-295-91	SHORT	0	
JR303	1-216-295-91	SHORT	0	
JR404	1-216-295-91	SHORT	0	
JR405	1-216-295-91	SHORT	0	
JR500	1-216-295-91	SHORT	0	
JR501	1-216-295-91	SHORT	0	
JR503	1-216-295-91	SHORT	0	
JR600	1-216-295-91	SHORT	0	
		<COIL>		
L002	1-414-856-11	INDUCTOR	10UH	
L003	1-414-180-11	INDUCTOR	3.3UH	
L005	1-414-233-22	INDUCTOR CHIP	0UH	
L101	1-414-856-11	INDUCTOR	10UH	
L102	1-414-856-11	INDUCTOR	10UH	
L103	1-414-856-11	INDUCTOR	10UH	
L104	1-414-856-11	INDUCTOR	10UH	
L105	1-414-856-11	INDUCTOR	10UH	
L204	1-414-856-11	INDUCTOR	10UH	
L301	1-414-189-31	INDUCTOR	100UH	
L302	1-414-185-41	INDUCTOR	22UH	
L501	1-412-525-31	INDUCTOR	10UH	
L502	1-422-613-11	COIL, AIR CORE		
L503	1-412-525-31	INDUCTOR	10UH	
L504	1-412-525-31	INDUCTOR	10UH	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

REF. NO.	PART NO.	DESCRIPTION				REMARK
L505	1-412-525-31	INDUCTOR	10UH			
L506	1-412-525-31	INDUCTOR	10UH			
L507	1-459-111-00	INDUCTOR	10MMH			
L508	1-412-525-31	INDUCTOR	10UH			
L509	1-459-390-00	INDUCTOR	390UH			
L510	1-416-972-11	COIL, HORIZONTAL LINEARITY				
L512	1-412-549-31	INDUCTOR	1MMH			
L513	1-412-549-31	INDUCTOR	1MMH			
L515	1-459-104-00	COIL, WITH CORE				
L518	1-414-187-11	INDUCTOR	47UH			
L601	1-412-527-11	INDUCTOR	15UH			
L901	1-408-603-31	INDUCTOR	10UH			
L902	1-408-603-31	INDUCTOR	10UH			
L905	1-414-856-11	INDUCTOR	10UH			
		<PHOTO COUPLER>				
PH600 ⚠	8-749-924-35	PHOTO COUPLER ON3171-R				
		<IC LINK>				
PS200	1-532-675-21	LINK, IC 1.5A/150V				
		<TRANSISTOR>				
Q002	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q003	8-729-424-08	TRANSISTOR UN2111				
Q004	8-729-421-22	TRANSISTOR UN2211				
Q101	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q201	8-729-424-67	TRANSISTOR UN2216				
Q202	8-729-424-67	TRANSISTOR UN2216				
Q203	8-729-421-19	TRANSISTOR UN2213				
Q204	8-729-216-22	TRANSISTOR 2SA1162-G				
Q205	8-729-421-19	TRANSISTOR UN2213				
Q206	8-729-421-19	TRANSISTOR UN2213				
Q207	8-729-421-19	TRANSISTOR UN2213				
Q301	8-729-216-22	TRANSISTOR 2SA1162-G				
Q302	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q303	8-729-216-22	TRANSISTOR 2SA1162-G				
Q305	8-729-216-22	TRANSISTOR 2SA1162-G				
Q306	8-729-216-22	TRANSISTOR 2SA1162-G				
Q307	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q308	8-729-216-22	TRANSISTOR 2SA1162-G				
Q312	8-729-216-22	TRANSISTOR 2SA1162-G				
Q313	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q315	8-729-421-19	TRANSISTOR UN2213				
Q401	8-729-424-67	TRANSISTOR UN2216				
Q404	8-729-216-22	TRANSISTOR 2SA1162-G				
Q503	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q505	8-729-931-45	TRANSISTOR IRF614				
Q506	8-729-140-96	TRANSISTOR 2SD774-34				
Q507	8-729-216-22	TRANSISTOR 2SA1162-G				
Q509	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q511	8-729-048-07	TRANSISTOR 2SD2578-CA				
Q601	8-729-023-22	TRANSISTOR 2SD2114K				
Q602	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q604	8-729-200-17	TRANSISTOR 2SA1091-O				
Q605	8-729-044-30	TRANSISTOR 2SK2845-LB102				
Q606	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q607	8-729-922-37	TRANSISTOR 2SD2144S-UVW				
Q608	8-729-230-49	TRANSISTOR 2SC2712-YG				
Q901	8-729-421-19	TRANSISTOR UN2213				
Q902	8-729-421-19	TRANSISTOR UN2213				
		<RESISTOR>				
R001	1-414-233-22	INDUCTOR CHIP	0UH			
R002	1-216-025-91	RES,CHIP	100	5%	1/10W	
R003	1-216-295-91	SHORT	0			
R004	1-216-025-91	RES,CHIP	100	5%	1/10W	
R005	1-216-025-91	RES,CHIP	100	5%	1/10W	
R007	1-216-295-91	SHORT	0			
R008	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R010	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R011	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R012	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R013	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R014	1-216-025-91	RES,CHIP	100	5%	1/10W	
R015	1-216-025-91	RES,CHIP	100	5%	1/10W	
R017	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R018	1-216-033-00	RES,CHIP	220	5%	1/10W	
R019	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R021	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R022	1-216-033-00	RES,CHIP	220	5%	1/10W	
R024	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R025	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R026	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R027	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R029	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R031	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R035	1-216-025-91	RES,CHIP	100	5%	1/10W	
R036	1-216-025-91	RES,CHIP	100	5%	1/10W	
R037	1-216-025-91	RES,CHIP	100	5%	1/10W	
R040	1-216-025-91	RES,CHIP	100	5%	1/10W	
R041	1-216-025-91	RES,CHIP	100	5%	1/10W	
R042	1-216-295-91	SHORT	0			
R043	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R044	1-216-025-91	RES,CHIP	100	5%	1/10W	
R045	1-414-233-22	INDUCTOR CHIP	0UH			
R046	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R047	1-414-233-22	INDUCTOR CHIP	0UH			
R048	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R050	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R053	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R055	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R056	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R061	1-216-033-00	RES,CHIP	220	5%	1/10W	
R062	1-216-041-00	RES,CHIP	470	5%	1/10W	
R063	1-216-037-00	RES,CHIP	330	5%	1/10W	
R064	1-216-037-00	RES,CHIP	330	5%	1/10W	
R065	1-216-037-00	RES,CHIP	330	5%	1/10W	
R066	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R067	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R105	1-216-295-91	SHORT	0			
R109	1-216-041-00	RES,CHIP	470	5%	1/10W	
R111	1-216-025-91	RES,CHIP	100	5%	1/10W	

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REF. NO.	PART NO.	DESCRIPTION			REMARK
R112	1-216-025-91	RES,CHIP	100	5%	1/10W
R113	1-216-047-91	RES,CHIP	820	5%	1/10W
R202	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R203	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R204	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R205	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R206	1-216-063-91	RES,CHIP	3.9K	5%	1/10W
R207	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R208	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R209	1-216-061-00	RES,CHIP	3.3K	5%	1/10W
R210	1-216-019-00	RES,CHIP	56	5%	1/10W
R212	1-216-019-00	RES,CHIP	56	5%	1/10W
R213	1-216-073-00	RES,CHIP	10K	5%	1/10W
R214	1-216-073-00	RES,CHIP	10K	5%	1/10W
R215	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R216	1-216-059-00	RES,CHIP	2.7K	5%	1/10W
R217	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R218	1-216-067-00	RES,CHIP	5.6K	5%	1/10W
R219	1-216-025-91	RES,CHIP	100	5%	1/10W
R220	1-216-025-91	RES,CHIP	100	5%	1/10W
R221	1-216-295-91	SHORT	0		
R225	1-216-033-00	RES,CHIP	220	5%	1/10W
R226	1-216-033-00	RES,CHIP	220	5%	1/10W
R227	1-216-033-00	RES,CHIP	220	5%	1/10W
R228	1-249-389-11	CARBON	4.7	5%	1/4W
R229	1-216-073-00	RES,CHIP	10K	5%	1/10W
R230	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R231	1-216-295-91	SHORT	0		
R234	1-249-389-11	CARBON	4.7	5%	1/4W
R235	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R236	1-216-069-00	RES,CHIP	6.8K	5%	1/10W
R237	1-216-308-00	RES,CHIP	4.7	5%	1/10W
R301	1-216-073-00	RES,CHIP	10K	5%	1/10W
R302	1-216-295-91	SHORT	0		
R303	1-216-049-91	RES,CHIP	1K	5%	1/10W
R304	1-216-073-00	RES,CHIP	10K	5%	1/10W
R305	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R306	1-216-073-00	RES,CHIP	10K	5%	1/10W
R308	1-216-025-91	RES,CHIP	100	5%	1/10W
R309	1-216-025-91	RES,CHIP	100	5%	1/10W
R310	1-216-025-91	RES,CHIP	100	5%	1/10W
R311	1-216-017-91	RES,CHIP	47	5%	1/10W
R312	1-216-041-00	RES,CHIP	470	5%	1/10W
R313	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R314	1-216-045-00	RES,CHIP	680	5%	1/10W
R316	1-216-053-00	RES,CHIP	1.5K	5%	1/10W
R317	1-216-077-91	RES,CHIP	15K	5%	1/10W
R318	1-216-051-00	RES,CHIP	1.2K	5%	1/10W
R319	1-216-025-91	RES,CHIP	100	5%	1/10W
R320	1-216-065-91	RES,CHIP	4.7K	5%	1/10W
R321	1-216-073-00	RES,CHIP	10K	5%	1/10W
R322	1-216-033-00	RES,CHIP	220	5%	1/10W
R331	1-216-295-91	SHORT	0		
R332	1-216-033-00	RES,CHIP	220	5%	1/10W
R333	1-216-073-00	RES,CHIP	10K	5%	1/10W
R334	1-216-129-00	RES,CHIP	2.2M	5%	1/10W
R335	1-216-045-00	RES,CHIP	680	5%	1/10W
R338	1-216-033-00	RES,CHIP	220	5%	1/10W

REF. NO.	PART NO.	DESCRIPTION			REMARK	
R340	1-216-025-91	RES,CHIP	100	5%	1/10W	
R345	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R348	1-208-806-11	RES,CHIP	10K	0.50%	1/10W	
R349	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R350	1-216-061-00	RES,CHIP	3.3K	5%	1/10W	
R351	1-216-053-00	RES,CHIP	1.5K	5%	1/10W	
R354	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R355	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R356	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R357	1-216-079-00	RES,CHIP	18K	5%	1/10W	
R358	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R359	1-216-033-00	RES,CHIP	220	5%	1/10W	
R360	1-216-033-00	RES,CHIP	220	5%	1/10W	
R361	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R362	1-216-075-00	RES,CHIP	12K	5%	1/10W	
R363	1-216-079-00	RES,CHIP	18K	5%	1/10W	
R364	1-216-295-91	SHORT	0			
R365	1-216-033-00	RES,CHIP	220	5%	1/10W	
R366	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R367	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R370	1-216-033-00	RES,CHIP	220	5%	1/10W	
R376	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R377	1-216-121-91	RES,CHIP	1M	5%	1/10W	
R378	1-216-031-00	RES,CHIP	180	5%	1/10W	
R404	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R405	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R406	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R408	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R411	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R412	1-216-041-00	RES,CHIP	470	5%	1/10W	
R413	1-216-021-00	RES,CHIP	68	5%	1/10W	
R414	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R417	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R418	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R419	1-216-022-00	RES,CHIP	75	5%	1/10W	
R426	1-216-033-00	RES,CHIP	220	5%	1/10W	
R505	1-216-099-00	RES,CHIP	120K	5%	1/10W	
R506	1-216-085-00	RES,CHIP	33K	5%	1/10W	
R507	1-249-389-11	CARBON	4.7	5%	1/4W	F
R508	1-215-910-00	METAL OXIDE	68	5%	3W	F
R509	1-215-911-11	METAL OXIDE	100	5%	3W	F
R510	1-215-885-00	METAL OXIDE	68	5%	2W	F
R511	1-215-911-11	METAL OXIDE	100	5%	3W	F
R516	1-216-081-00	RES,CHIP	22K	5%	1/10W	
R518	1-247-807-31	CARBON	100	5%	1/4W	
R520	1-215-445-00	METAL	10K	1%	1/4W	
R522	1-208-806-11	RES,CHIP	10K	0.50%	1/10W	
R523	1-249-411-11	CARBON	330	5%	1/4W	
R525	1-208-830-11	RES,CHIP	100K	0.50%	1/10W	
R526	1-208-798-11	RES,CHIP	4.7K	0.50%	1/10W	
R527	1-216-001-00	RES,CHIP	10	5%	1/10W	
R528	1-208-814-91	RES,CHIP	22K	0.50%	1/10W	
R529	1-208-766-11	RES,CHIP	220	0.50%	1/10W	
R531	1-247-843-11	CARBON	3.3K	5%	1/4W	
R533	1-249-417-11	CARBON	1K	5%	1/4W	
R534	1-216-361-00	METAL OXIDE	0.22	5%	2W	F
R535	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	
R536	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	

The components identified by shading and mark ⚠ are critical for safety.
Replace only with part number specified.

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REF. NO.	PART NO.	DESCRIPTION			REMARK	
R537	1-208-814-91	RES,CHIP	22K	0.50%	1/10W	
R540	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R541	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R542	1-216-295-91	SHORT	0			
R543	1-249-426-11	CARBON	5.6K	5%	1/4W	F
R544	1-216-457-00	METAL OXIDE	1.2K	5%	2W	F
R545	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R546	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R547	1-216-085-00	RES,CHIP	33K	5%	1/10W	
R549	1-215-451-00	METAL	18K	1%	1/4W	
R550	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R551	1-249-421-11	CARBON	2.2K	5%	1/4W	
R552	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R553	1-215-457-00	METAL	33K	1%	1/4W	
R554	1-215-457-00	METAL	33K	1%	1/4W	
R556	1-215-437-00	METAL	4.7K	1%	1/4W	
R558	1-249-421-11	CARBON	2.2K	5%	1/4W	
R559	1-249-429-11	CARBON	10K	5%	1/4W	
R560	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R562	1-249-401-11	CARBON	47	5%	1/4W	
R565	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R567	1-216-105-91	RES,CHIP	220K	5%	1/10W	
R568	1-249-383-11	CARBON	1.5	5%	1/4W	F
R570	1-216-069-00	RES,CHIP	6.8K	5%	1/10W	
R571	1-215-437-00	METAL	4.7K	1%	1/4W	
R573	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R577	1-215-913-11	METAL OXIDE	220	5%	3W	F
R578	1-216-369-00	METAL OXIDE	1	5%	2W	F
R579	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R580	1-208-830-11	RES,CHIP	100K	0.50%	1/10W	
R581	1-208-798-11	RES,CHIP	4.7K	0.50%	1/10W	
R585	1-249-391-11	CARBON	6.8	5%	1/4W	F
R588	1-215-888-00	METAL OXIDE	220	5%	2W	F
R589	1-215-888-00	METAL OXIDE	220	5%	2W	F
R590	1-215-465-00	METAL	68K	1%	1/4W	
R591	1-260-288-11	CARBON	0.47	5%	1/2W	F
R593	1-260-288-11	CARBON	0.47	5%	1/2W	F
R594	1-260-288-11	CARBON	0.47	5%	1/2W	F
R596	1-216-485-11	METAL OXIDE	5.6K	5%	3W	F
R597	1-247-750-11	CARBON	680	5%	1/2W	F
R598	1-249-438-11	CARBON	56K	5%	1/4W	
R599	1-249-389-11	CARBON	4.7	5%	1/4W	
R600	1-249-438-11	CARBON	56K	5%	1/4W	
R601	1-249-418-11	CARBON	1.2K	5%	1/4W	F
R602	1-249-389-11	CARBON	4.7	5%	1/4W	F
R603	1-215-485-00	METAL	470K	1%	1/4W	
R604	1-216-097-91	RES,CHIP	100K	5%	1/10W	
R607	1-249-425-11	CARBON	4.7K	5%	1/4W	
R608	1-240-205-91	CARBON	22M	5%	1/2W	
R609	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R610	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R611	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R612	1-216-045-00	RES,CHIP	680	5%	1/10W	
R614	1-216-041-00	RES,CHIP	470	5%	1/10W	
R615	1-216-350-11	METAL OXIDE	1.2	5%	1W	F
R616	1-260-302-51	CARBON	6.8	5%	1/2W	F
R617	1-247-791-91	CARBON	22	5%	1/4W	
R619	1-260-128-11	CARBON	270K	5%	1/2W	

REF. NO.	PART NO.	DESCRIPTION			REMARK	
R620	1-215-915-11	METAL OXIDE	470	5%	3W	F
R622	1-215-908-00	METAL OXIDE	33	5%	3W	F
R623	1-216-095-00	RES,CHIP	82K	5%	1/10W	
R624	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R626	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R627	1-240-251-11	CMT,MELF	6.8	5%	10W	
R629	1-247-747-11	CARBON	470	5%	1/2W	F
R630	1-249-429-11	CARBON	10K	5%	1/4W	F
R631	1-216-089-91	RES,CHIP	47K	5%	1/10W	
R632	1-202-933-61	FUSIBLE	0.1	10%	1/2W	F
R634 ⚠	1-218-265-11	METAL	8.2M	5%	1W	
R635	1-216-492-11	METAL OXIDE	82K	5%	3W	F
R636	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R637	1-216-492-11	METAL OXIDE	82K	5%	3W	F
R639	1-216-363-00	METAL OXIDE	0.33	5%	2W	F
R640	1-249-415-11	CARBON	680	5%	1/4W	
R641	1-216-362-11	METAL OXIDE	0.27	5%	2W	F
R642	1-249-419-11	CARBON	1.5K	5%	1/4W	
R643	1-247-843-11	CARBON	3.3K	5%	1/4W	
R644	1-249-419-11	CARBON	1.5K	5%	1/4W	
R646	1-215-924-00	METAL OXIDE	15K	5%	3W	F
R647	1-249-401-11	CARBON	47	5%	1/4W	
R648	1-216-057-00	RES,CHIP	2.2K	5%	1/10W	
R649	1-249-417-11	CARBON	1K	5%	1/4W	
R650	1-215-882-00	METAL OXIDE	22	5%	2W	F
R652	1-215-900-11	METAL OXIDE	22K	5%	2W	F
R653	1-215-873-00	METAL OXIDE	4.7K	5%	1W	F
R657	1-260-127-11	CARBON	220K	5%	1/2W	
R659	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R660	1-216-073-00	RES,CHIP	10K	5%	1/10W	
R661	1-215-873-00	METAL OXIDE	4.7K	5%	1W	F
R680	1-216-308-00	RES,CHIP	4.7	5%	1/10W	
R901	1-249-411-11	CARBON	330	5%	1/4W	
R902	1-249-411-11	CARBON	330	5%	1/4W	
R903	1-216-022-00	RES,CHIP	75	5%	1/10W	
R904	1-216-033-00	RES,CHIP	220	5%	1/10W	
R905	1-216-113-00	RES,CHIP	470K	5%	1/10W	
R906	1-216-077-91	RES,CHIP	15K	5%	1/10W	
R909	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R910	1-216-065-91	RES,CHIP	4.7K	5%	1/10W	
R911	1-216-067-00	RES,CHIP	5.6K	5%	1/10W	
R912	1-216-041-00	RES,CHIP	470	5%	1/10W	
R913	1-216-049-91	RES,CHIP	1K	5%	1/10W	
R914	1-216-055-00	RES,CHIP	1.8K	5%	1/10W	
R915	1-216-061-00	RES,CHIP	3.3K	5%	1/10W	
R916	1-216-017-91	RES,CHIP	47	5%	1/10W	
R917	1-216-041-00	RES,CHIP	470	5%	1/10W	
R918	1-216-041-00	RES,CHIP	470	5%	1/10W	
		<RELAY>				
RY601 ⚠	1-755-299-11	RELAY				

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

A C3

REF. NO.		PART NO.	DESCRIPTION				REMARK
			<SWITCH>				
S502		1-572-707-11	SWITCH, LEVER				
S600	⚠	1-571-433-21	SWITCH, PUSH (AC POWER)				
S901		1-692-431-21	SWITCH, TACTILE				
S902		1-692-431-21	SWITCH, TACTILE				
S903		1-692-431-21	SWITCH, TACTILE				
S904		1-692-431-21	SWITCH, TACTILE				
S905		1-692-431-21	SWITCH, TACTILE				
S906		1-692-431-21	SWITCH, TACTILE				
S907		1-692-431-21	SWITCH, TACTILE				
			<TRANSFORMER>				
T501		1-437-195-11	TRANSFORMER, HORIZONTAL DRIVE				
T503	⚠	1-453-293-11	FBT ASSY, NX-1748//M3A4				
T601		1-424-682-11	TRANSFORMER, LINE FILTER				
T603	⚠	1-433-513-31	TRANSFORMER, CONVERTER (SRT)				
T604	⚠	1-431-852-11	TRANSFORMER, CONVERTER (SRT)				
			<THERMISTOR>				
THP600		1-810-961-11	THERMISTOR, POSITIVE				
			<TUNER>				
TU101		8-598-449-10	TUNER, FSS BTF-LG433				
			<CRYSTAL>				
X001		1-579-125-11	VIBRATOR, CERAMIC				
X301		1-781-134-21	VIBRATOR, CRYSTAL				
X302		1-781-132-21	VIBRATOR, CRYSTAL				
******	*	**					
	*	A-1331-884-A	C3 BOARD MOUNTED ********************				
		7-682-948-01	SCREW +PSW 3X8				
			<CAPACITOR>				
C701		1-162-114-00	CERAMIC	0.0047MF		2KV	
C702		1-102-074-00	CERAMIC	0.001MF	10%	50V	
C703		1-107-651-11	ELECT	4.7MF	20%	250V	
C704		1-130-202-00	FILM	0.022MF	5%	400V	
C706		1-104-664-11	ELECT	47MF	20%	16V	
C708		1-102-114-00	CERAMIC	470PF	10%	50V	
C709		1-102-114-00	CERAMIC	470PF	10%	50V	
C710		1-102-114-00	CERAMIC	470PF	10%	50V	
C712		1-102-116-00	CERAMIC	680PF	10%	50V	
C713		1-102-116-00	CERAMIC	680PF	10%	50V	
C714		1-102-116-00	CERAMIC	680PF	10%	50V	
C716		1-126-933-11	ELECT	100MF	20%	16V	
C717		1-101-880-00	CERAMIC	47PF	5%	50V	
C736		1-102-114-00	CERAMIC	470PF	10%	50V	
C737		1-102-114-00	CERAMIC	470PF	10%	50V	

REF. NO.		PART NO.	DESCRIPTION				REMARK
C746		1-102-114-00	CERAMIC	470PF	10%	50V	
			<CONNECTOR>				
CN701		1-508-765-00	PIN, CONNECTOR (5MM PITCH) 3P				
CN702		1-695-915-11	TAB (CONTACT)				
CN703	*	1-564-509-11	PLUG, CONNECTOR 6P				
CN704		1-695-915-11	TAB (CONTACT)				
			<DIODE>				
D701		8-719-911-19	DIODE 1SS119-25				
D702		8-719-911-19	DIODE 1SS119-25				
D703		8-719-911-19	DIODE 1SS119-25				
D707		8-719-911-19	DIODE 1SS119-25				
D708		8-719-911-19	DIODE 1SS119-25				
D709		8-719-911-19	DIODE 1SS119-25				
D710		8-719-911-19	DIODE 1SS119-25				
D711		8-719-911-19	DIODE 1SS119-25				
D712		8-719-911-19	DIODE 1SS119-25				
D713		8-719-911-19	DIODE 1SS119-25				
D714		8-719-911-19	DIODE 1SS119-25				
D715		8-719-911-19	DIODE 1SS119-25				
D716		8-719-911-19	DIODE 1SS119-25				
D717		8-719-121-26	DIODE RD9.1ESL2				
			<JACK>				
J701	⚠	1-540-071-22	SOCKET, CRT				
			<COIL>				
L701		1-410-667-31	INDUCTOR	22UH			
L710		1-408-613-31	INDUCTOR	68UH			
L711		1-408-613-31	INDUCTOR	68UH			
L712		1-408-613-31	INDUCTOR	68UH			
			<TRANSISTOR>				
Q704		8-729-326-11	TRANSISTOR 2SC2611				
Q705		8-729-326-11	TRANSISTOR 2SC2611				
Q706		8-729-326-11	TRANSISTOR 2SC2611				
Q707		8-729-200-17	TRANSISTOR 2SA1091-O				
Q708		8-729-200-17	TRANSISTOR 2SA1091-O				
Q709		8-729-200-17	TRANSISTOR 2SA1091-O				
Q710		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q711		8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q712		8-729-119-78	TRANSISTOR 2SC2785-HFE				
			<RESISTOR>				
R703		1-249-496-11	CARBON	100K	5%	1/2W	
R705		1-216-380-11	METAL OXIDE	8.2	5%	2W	F
R706		1-215-417-00	METAL	680	1%	1/4W	
R707		1-215-413-00	METAL	470	1%	1/4W	
R708		1-216-379-11	METAL OXIDE	6.8	5%	2W	F
R710		1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R711		1-247-752-11	CARBON	1K	5%	1/2W	

The components identified by shading and mark ⚠ are critical for safety.
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C3 F VM1

REF. NO.	PART NO.	DESCRIPTION			REMARK	
R712	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R713	1-247-752-11	CARBON	1K	5%	1/2W	
R714	1-215-922-11	METAL OXIDE	6.8K	5%	3W	F
R715	1-247-752-11	CARBON	1K	5%	1/2W	
R719	1-215-480-00	METAL	300K	1%	1/4W	
R720	1-249-923-11	CARBON	1K	5%	1/4W	F
R721	1-215-489-00	METAL	680K	1%	1/4W	
R722	1-249-923-11	CARBON	1K	5%	1/4W	F
R723	1-215-479-00	METAL	270K	1%	1/4W	
R724	1-249-923-11	CARBON	1K	5%	1/4W	F
R725	1-249-421-11	CARBON	2.2K	5%	1/4W	
R726	1-249-421-11	CARBON	2.2K	5%	1/4W	
R727	1-249-421-11	CARBON	2.2K	5%	1/4W	
R728	1-249-407-11	CARBON	150	5%	1/4W	
R729	1-249-407-11	CARBON	150	5%	1/4W	
R730	1-249-407-11	CARBON	150	5%	1/4W	
R731	1-249-407-11	CARBON	150	5%	1/4W	
R732	1-249-407-11	CARBON	150	5%	1/4W	
R733	1-249-406-11	CARBON	120	5%	1/4W	
R734	1-247-739-11	CARBON	100	5%	1/2W	
R738	1-247-807-31	CARBON	100	5%	1/4W	
R739	1-247-807-31	CARBON	100	5%	1/4W	
R740	1-247-807-31	CARBON	100	5%	1/4W	
R755	1-249-418-11	CARBON	1.2K	5%	1/4W	
R756	1-249-418-11	CARBON	1.2K	5%	1/4W	
R757	1-249-418-11	CARBON	1.2K	5%	1/4W	
		<VARIABLE RESISTOR>				
RV702	1-241-656-11	RES, ADJ, METAL FILM 110M				

****** * **

REF. NO.	PART NO.	DESCRIPTION			REMARK
*	A-1241-355-A	F BOARD MOUNTED *******************			
	1-533-223-11	CLIP, FUSE			
*	4-374-846-01	COVER, CAPACITOR, CAP TYPE			
		<CAPACITOR>			
C654 ⚠	1-117-703-11	CERAMIC	0.0047MF	99%	250V
C4602 ⚠	1-104-708-11	FILM	0.47MF	20%	250V
		<CONNECTOR>			
CN4601 *	1-580-843-11	PIN, CONNECTOR (POWER)			
CN4602 *	1-580-843-11	PIN, CONNECTOR (POWER)			
CN4603	1-695-915-11	TAB (CONTACT)			
		<FUSE>			
F4601 ⚠	1-532-237-00	FUSE, TIME-LAG (BET) 3.15A/250V			
		<RESISTOR>			
R4601 ⚠	1-202-719-00	SOLID	1M	10%	1/2W
		<TRANSFORMER>			
T4601	1-424-682-11	TRANSFORMER, LINE FILTER			
T4602	1-424-682-11	TRANSFORMER, LINE FILTER			
		<VARISTOR>			
VDR461	1-801-073-31	VARISTOR TNR14V471K660			

****** * **

REF. NO.	PART NO.	DESCRIPTION			REMARK
*	A-1342-453-A	VM1 BOARD MOUNTED **********************			
	4-382-854-11	SCREW (M3X10), P, SW (+)			
		<CAPACITOR>			
C5902	1-104-661-91	ELECT	330MF	20%	16V
C5903	1-161-830-00	CERAMIC	0.0047MF		500V
C5905	1-126-925-11	ELECT	470MF	20%	10V
C5906	1-130-491-00	MYLAR	0.047MF	5%	50V
C5907	1-107-638-11	ELECT	33MF	20%	160V
C5908	1-106-383-00	MYLAR	0.047MF	10%	200V
C5909	1-126-933-11	ELECT	100MF	20%	16V
C5910	1-130-471-00	MYLAR	0.001MF	5%	50V
C5911	1-107-949-11	ELECT	2.2MF	20%	160V
C5912	1-104-999-11	MYLAR	0.1MF	10%	200V
C5913	1-130-471-00	MYLAR	0.001MF	5%	50V
C5914	1-126-933-11	ELECT	100MF	20%	16V
C5916	1-130-491-00	MYLAR	0.047MF	5%	50V
C5917	1-126-925-11	ELECT	470MF	20%	10V
C5918	1-115-341-51	CERAMIC	120PF	10%	500V
C5920	1-126-964-11	ELECT	10MF	20%	50V
C5921	1-101-888-00	CERAMIC	68PF	5%	50V
		<CONNECTOR>			
CN5901 *	1-564-510-11	PLUG, CONNECTOR 7P			
CN5904 *	1-770-723-11	CONNECTOR, BOARD TO BOARD 8P			
		<DIODE>			
D5901	8-719-911-19	DIODE 1SS119-25			
D5902	8-719-110-88	DIODE RD39ESB2			
D5903	8-719-911-19	DIODE 1SS119-25			
D5904	8-719-110-88	DIODE RD39ESB2			
D5905	8-719-911-19	DIODE 1SS119-25			
D5906	1-249-406-11	CARBON	120	5%	1/4W
D5907	1-249-406-11	CARBON	120	5%	1/4W

The components identified by shading and mark ⚠ are critical for safety. Replace only with part number specified.

VM1

REF. NO.	PART NO.	DESCRIPTION				REMARK
		<COIL>				
L5901	1-414-187-11	INDUCTOR	47UH			
L5902	1-414-856-11	INDUCTOR	10UH			
		<TRANSISTOR>				
Q5901	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5902	8-729-809-26	TRANSISTOR 2SA1606-E				
Q5903	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5904	8-729-119-76	TRANSISTOR 2SA1175-HFE				
Q5905	8-729-230-45	TRANSISTOR 2SC2458-YGR				
Q5906	8-729-809-29	TRANSISTOR 2SC4159-E				
Q5908	8-729-119-78	TRANSISTOR 2SC2785-HFE				
Q5909	8-729-119-78	TRANSISTOR 2SC2785-HFE				
		<RESISTOR>				
R5901	1-247-815-91	CARBON	220	5%	1/4W	
R5902	1-249-414-11	CARBON	560	5%	1/4W	F
R5903	1-247-735-11	CARBON	47	5%	1/2W	F
R5904	1-249-411-11	CARBON	330	5%	1/4W	
R5905	1-249-417-11	CARBON	1K	5%	1/4W	
R5906	1-249-417-11	CARBON	1K	5%	1/4W	
R5907	1-249-417-11	CARBON	1K	5%	1/4W	
R5908	1-249-383-11	CARBON	1.5	5%	1/4W	F
R5909	1-247-815-91	CARBON	220	5%	1/4W	
R5910	1-249-403-11	CARBON	68	5%	1/4W	
R5911	1-249-439-11	CARBON	68K	5%	1/4W	
R5912	1-249-437-11	CARBON	47K	5%	1/4W	
R5914	1-249-403-11	CARBON	68	5%	1/4W	
R5915	1-249-429-11	CARBON	10K	5%	1/4W	
R5916	1-249-419-11	CARBON	1.5K	5%	1/4W	
R5917	1-249-416-11	CARBON	820	5%	1/4W	
R5918	1-249-429-11	CARBON	10K	5%	1/4W	
R5919	1-249-417-11	CARBON	1K	5%	1/4W	F
R5920	1-249-439-11	CARBON	68K	5%	1/4W	
R5921	1-215-912-11	METAL OXIDE	150	5%	3W	F
R5922	1-249-414-11	CARBON	560	5%	1/4W	
R5923	1-249-383-11	CARBON	1.5	5%	1/4W	F
R5925	1-249-401-11	CARBON	47	5%	1/4W	F
R5929	1-215-880-00	METAL OXIDE	10	5%	2W	F
R5930	1-249-413-11	CARBON	470	5%	1/4W	
R5931	1-249-413-11	CARBON	470	5%	1/4W	
R5932	1-249-413-11	CARBON	470	5%	1/4W	
R5933	1-249-413-11	CARBON	470	5%	1/4W	
R5934	1-249-430-11	CARBON	12K	5%	1/4W	
R5935	1-249-429-11	CARBON	10K	5%	1/4W	

REF. NO.	PART NO.	DESCRIPTION	REMARK
******	*	**	
		MISCELLANEOUS	
		*************	
⚠	1-416-946-11	COIL, DEMAGNETIC	
	1-417-151-21	MATCHING TRANSFORMER, ANTENNA	
	1-452-032-00	MAGNET,DISC	
	1-501-372-81	ANTENNA, TELESCOPIC	
	1-503-902-21	SPEAKER (15X6.5 CM)	
	1-569-008-21	ADAPTOR, CONVERSION 2P	
⚠	1-574-062-61	CORD, POWER (WITH CONNECTOR) 2.5A/250V	
	8-451-505-11	DEFLECTION YOKE (Y21RSA-S)	
	8-453-011-31	NA299-S2	
⚠	8-738-809-05	PICTURE TUBE (A51LP70X)	
******	*	**	
		ACCESSORIES AND PACKING MATERIALS	
		***************************************	
	1-417-151-21	MATCHING TRANSFORMER, ANTENNA	
	1-569-008-21	ADAPTOR, CONVERSION 2P	
	3-701-910-01	SCREW, SPECIAL (DIA. 3.8X20)	
	3-867-869-11	MANUAL,INSTRUCTION	
	4-392-003-11	BAND, HOLD	
	4-392-004-11	CLIP	
*	4-039-372-01	BAG, PROTECTION	
*	4-067-165-01	CUSHION,(LOWER)(ASS'Y)	
*	4-067-166-01	CUSHION (UPPER)(ASS'Y)	
*	4-067-175-02	INDIVIDUAL CARTON	
******	*	**	
		REMOTE COMMANDER	
		**********************	
	1-418-163-11	REMOTE COMMANDER (RM-952)	
	9-939-697-01	BATTERY COVER, REMOTE COMMANDER	

9-965-755-01

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